Universidade de Aveiro Departamento de Ciências Sociais, Políticas e do Território
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TATYANA YURYEVNA KORYAKINA ANTUNES

DIVERSIFICAÇÃO DE FINANCIAMENTO NO ENSINO SUPERIOR: CASO DE PORTUGAL.

REVENUE DIVERSIFICATION IN HIGHER EDUCATION: THE CASE OF PORTUGAL.

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REVENUE DIVERSIFICATION IN HIGHER EDUCATION: THE CASE OF PORTUGAL

Tese apresentada à Universidade de Aveiro para cumprimento dos requisitos necessários à obtenção do grau de Doutor em Ciências Sociais, realizada sob a orientação científica da Doutora Cláudia S. Sarrico, Professora Associada com Agregação do Departamento de Gestão do Instituto Superior de Economia e Gestão da Universiade de Lisboa e do Doutor Pedro Teixeira, Professor Associado da Faculdade de Economia da Universidade do Porto.

To my grandparents and parents who showed me the value of knowledge

o júri

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palavras-chave

Ensino superior, financiamento do ensino sperior, diversificação de financiamento, governação do ensino superior, administração das universidades, fontes alternativas de financiamento, actividades de valorização do comhecimento, universidade empresarial, adaptação organizacional, estrategias de diversificação de financiamento.

resumo

As mudanças socioeconómicas, as alterações nas espectativas sociais e novas políticas públicas têm posto uma enorme pressão sobre o financiamento público do ensino superior, trazendo a questão da diversificação do financiamento para o primeiro plano. Diversificação de financiamento, nomeadamente, a geração de receitas próprias de fundos provados, bem como de financiamento competitivo público, tornou-se cada vez mais importante no ensino superior Europeu, devido a um ambiente financeiro complexo e a défice de transferência de inovação. Embora existam numerosos estudos sobre mudanças nos sistemas nacionais de financiamento do ensino superior e mecanismos da distribuição do mesmo, poucos têm-se centrado na questão de diversificação das fontes de financiamento, especialmente no contexto Europeu e também em Portugal.

Assim, este estudo pretende explorar a diversificação de financiamento ao nível institucional e sua influência sobre as estruturas organizacionais das universidades. Para este efeito, duas universidades públicas Portuguesas foram escolhidas como estudos de caso. Os dados foram recolhidos através de entrevistas semi-estruturadas com membros de Reitoria e Diretores de Departamentos e Faculdades, bem como da análise documental. A análise de dados mostrou que ambas as universidades encontram-se em processo de institualização e formalização de práticas de diversificação de financiamento, nomeadamente ficando mais profissionais em lidar com agentes externos, tais como as empresas, a comunidade local e os estudantes. No entanto, o estudo também revelou que não há uma estratégia formal, organizada para lidar com a diversificação de financiamento. Em geral, as universidades estão a responder a procura externa, em vez de explorar pró-activamente as oportunidades. Em relação a isto, a análise de dados determinou vários fatores que promovem ou inibem atividades de diversificação de financiamento. Qualidade e cultura organizacional favorável foram nomeadas pelos entrevistados como os fatores mais relevantes a diversificação de financiamento bem-sucedido. Fatores externos, como enquadramento jurídico e condições de financiamento foram citados como principais constrangimentos. O estudo também revelou que as atividades de diversificação de fontes de financiamento tendem a desenvolver ao longo do continuum em direção a maior sofisticação e sistematização das atividades suportadas por uma infra-estrutura sólida. Juntamente com os esforços a nível institucional, o papel das políticas governamentais prova ser crucial no fornecimento de ferramentas e incentivos para as instituições do ensino superior e a criação de um sistema de ensino superior harmonioso.

keywords

Higher education, higher education funding, funding diversification, higher education governance, university management, alternative funding sources, third-mission activities, entrepreneurial university, organisational adaptation, revenue diversification strategies.

abstract

Socio-economic changes, alterations in societal expectations and new public policies have put pressures on higher education public funding, bringing the issue of funding diversification to the forefront. Income diversification, namely, generation of funds from private, as well as from competitive public sources, has become increasingly important in European higher education due to a complex financial environment and perceived deficit of innovation transfer. Although there are numerous studies about changes in national funding systems and allocation mechanisms, few have focused on diversification of funding sources, especially in the European context, making Portugal no exception.

Thus, this study aims at exploring income diversification at the institutional level and its influence on the internal organisational structures. For this purpose two Portuguese public universities were chosen as case studies. The empirical material was collected through semi-structured interviews with top management and middle management of each university and through documentary analysis. Data analysis demonstrated that both universities are in the process of institutionalizing and formalising practices of income diversification, notably by getting more professional in how they are dealing with external stakeholders, such as businesses, local community, and students. However, the study also revealed that there is no formal, organised strategy to deal with income diversification. In general, the universities are reacting to external demands rather than pro-actively exploring opportunities. In this respect, the analysis determined several factors that promote or inhibit income diversification activities. Quality and favourable organizational culture were named by the interviewees as the most relevant factors for successful income diversification. External factors such as legal arrangements and funding conditions were cited as major constraints. This research has also revealed that revenue diversification activities tend to develop along the continuum towards higher sophistication and systematisation of activities that are supported by a powerful infrastructure. Together with efforts at the institutional level, the role of government policies proves to be crucial in providing tools and incentives to higher education institutions and creating a harmonious higher education system.

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INTRODUCTION

> Every few hundred years in Western history there occurs a sharp *transformation*. Within a few short decades, society rearranges itself – its worldview; its basic values; its social and political structure; its arts; its key institutions. Fifty years later there is a new world. (...) We are currently living in such a transformation (Drucker, 1993).

For many centuries higher education institutions have been performing a vital role in the society by preserving, transmitting and creating knowledge. They have also been recognised among the most stable and change resistant institutions to have existed during the past 500 years (Kerr, 1982). However, the traditional way in which higher education institutions have been operating has been challenged by unprecedented social, political, economic and technological changes that mounted in Western Europe and the United States around the last quarter of the twentieth century and spread around the world. In the words of Clark (1998), "the universities of the world have entered a time of disquieting turmoil that has no end in sight".

Among the pressures that forced higher education institutions to reform the ways they were organised and run, the leading ones are the following: the expansion of higher education systems from elite, catering for a restricted number of affluent students, to mass ones, providing education for a diverse student population and for a great variety of career paths (Gibbons, 1998; Trow, 2010); the increasing difficulty to sustain funding of higher education from predominantly public funds (Barr & Crawford, 2005; Johnstone & Marcucci, 2010); the increased international competition (Marginson, 2006) and the rethinking of approaches to public policy and the role of the state as the provider and guarantor of social welfare (Clarke et al., 2000; Ferlie et al., 1996; Pollitt, 1993).

The expectations from society towards higher education have expanded in recent decades as well. Higher education institutions are asked to play multiple roles: they are expected to educate a more diverse student population; improve the rates of graduation; respond to the needs of the changing job market; conduct relevant

basic and applied research; contribute to national and international economic competitiveness; internationalise their activities.

To address the above mentioned challenges, market-like forms of governance have been proposed as an alternative to tight government control (Teixeira et al., 2004) and centralised regulation, which was criticised for being inefficient, inflexible and averse to innovation. Such notions as the New Public Management (NPM) (Hood, 1991) and managerialism (Clarke & Newman, 1997; Pollitt, 1990) were at the core of higher education reforms of the past decades. These public management doctrines have advocated for greater competition, efficiency, private sector styles of management and attention to output and performance, among other features (Hood, 1991).

In terms of funding, the above mentioned changes meant introduction of performance-based or contract-based allocation of public funds, introduction or increase in cost-sharing (contributions from students and their families) and encouraging higher education institutions to raise extra income.

The effects of marketization on funding arrangements have been extensively explored by authors such as Johnstone (2002), Dill (2003), Geiger (2004; 2009), Bok (2005), Newman et al. (2004), Slaughter and Leslie (1997), Marginson and Considine (2000) among others. They mostly referred to Anglo-Saxon higher education systems where changes happened earlier and reforms had a more marked character. The funding pressures experienced by European universities on the continent, similarly, gave rise to studies which looked at how higher education institutions deal with and adapt to a changing funding environment (Clark, 1998; Shattock, 2008; Teixeira et al., 2004).

In the European context, the pace of change has accelerated to unprecedented levels since the late-1990s, largely, but not solely, due to the Lisbon strategy, which adopted an ambitious goal for Europe to become the most competitive knowledge economy in the world. The European Union considers higher education, research and innovation to be the main pillars for achieving this goal, but is concerned about its performance in this knowledge sector and aims to solve

“the European paradox”, whereby Europe has the necessary knowledge and research, but fails to transfer this into innovation and enhanced productivity and economic growth (van der Wende, 2009a). Among nine areas where action was considered necessary in order to help universities to modernise, the European Commission’s Modernisation Agenda (2006) stated the need to “reduce the funding gap and make funding work more effectively in education and research”. Thus, one of the propositions of the Agenda was to increase investment in research and development to 3% of GDP, two thirds of this investment being provided by private funding, and to invest 2% of GDP into higher education. The Commission also recommended universities to take greater responsibility for their own long-term financial sustainability, which implied pro-active diversification of their funding portfolios through collaboration with enterprises, foundations and other private sources (ibid.).

Thus, revenue diversification (or income diversification) has become one of the proposed solutions to the growing government austerity and the need to supplement public funding with private financial resources. In this study it is understood as any form of generation of additional income through new or existing funding sources, both public and private.

Revenue diversification is also linked to entrepreneurial behaviour inside the universities. The entrepreneurial paradigm derives its importance from the pressures described above and from the demands that global competitiveness is making on university organisation and governance. It can be seen as a means to cope with uncertainty and complexity of the external environment. *An entrepreneurial university* has become a widely used concept that contends that a university can build the capacity to break away from the constraints of a state-dominated funding system and the bureaucratic model of state regulation through strategic moves such as innovation, collaboration with third parties, and income diversification (Clark, 1998).

Against this background a study about income diversification seems to be timely and relevant. Its significance is emphasised by the fact that there are, as yet, few

empirical studies in the area of higher education funding in Portugal (Cabrito, 2004b; Cerdeira, 2009; Teixeira, Rosa, et al., 2004, 2006). On the international scale, the study of funding diversification is quite fragmented and is limited mainly to American and British experience. Additionally, available research usually covers only some part of revenue diversification practices: technology transfer (Slaughter, 1999), student contributions, fund raising, cooperation with industry (Etzkowitz & Leidersdorf, 1997), or includes revenue diversification in a more global context that influences universities as organisations (Clark, 1998; Shattock, 2003; Sporn, 1999). In light of recent international and national trends towards diversified funding, it is important to gain deeper knowledge of how universities raise extra income.

Combining the knowledge about new forms of university governance, changes in funding arrangements and the need to diversify income sources, this study aims at exploring income diversification at the institutional level and its influence on the internal organisational structure. We are also interested in finding out which institutional characteristics are associated with greater success in obtaining additional funds and which barriers exist. Thus, the study attempts to serve several purposes. First, it will help to situate Portugal in the international context regarding income diversification activities. Second, it will contribute to understanding market-like mechanisms in higher education financing and their impact on higher education institutions. Third, at the micro level, it will demonstrate institutional efforts to diversify income streams and how they are translated into day-to-day operations and decision making, as well as into institutional strategy.

A case-study approach was chosen as the most appropriate, given the explorative character of the study. Two Portuguese public universities were chosen as case studies. The empirical material was collected through semi-structured interviews with top management (vice-rectors, pro-rectors, and administrators) and middle management (faculty deans and heads of departments) of each university.

The thesis is organised into eight chapters. *Chapter 1* reviews literature and recent trends in higher education funding. It offers some insights into economic rationales

for public and private funding of higher education and their application from an international perspective. It concludes that despite some limitations, revenue diversification has become part of the reality in which higher education institutions operate. External context, such as government funding and regulations, is important in shaping universities' motivation to adopt revenue diversification practices. However, the way universities respond to external pressures depends on their organisational characteristics which are different from most business or government organisations. Therefore, *Chapter 2* focuses on higher education governance issues. It starts with describing different organisational models and defining the concept of governance. Then it proceeds with changes in public governance in general and in higher education in particular. *Chapter 3* is dedicated to the phenomenon of revenue diversification. First of all, it looks at the origin of this phenomenon, classifies different income streams and describes them in more detail. Secondly, it determines prerequisites for successful revenue diversification and its limitations. Then it presents organisational changes influenced by changes in the funding environment. In order to understand and assess these changes, two organisational theories are outlined in the final section of the chapter and their main points are related to income diversification. *Chapter 4* integrates the concepts examined in the first two chapters and applies them to the national context. It starts with a brief overview of the Portuguese higher education system and its development over the past thirty years and continues with funding and governance issues. *Chapter 5* presents methodological options selected for this study. The chapter defines the object of the study and research questions as well as provides justification for the use of qualitative methodology, outlines the methods of data collection and data analysis strategies. *Chapters 6 and 7* present the universities in terms of their history, organisational structure, research profile and financial resources and report the results of the field work. In *Chapter 8,* findings from both universities are summarised and a comparative analysis of the two case studies is carried out. The thesis concludes with final considerations on the contributions of the study, its limitations and topics for future research.

CHAPTER 1 - HIGHER EDUCATION FUNDING

Over the past 30 years, European higher education has been subjected to extensive reforms concerning its structure, governance, management and funding. Funding changes included a move away from incremental budgets to block grants, calculated with the help of a funding formula; the increased importance of output criteria in funding formulas; the introduction of competitive funding mechanisms and diversification of funding sources. The latter has arguably gained a special significance in a context of decreasing public budgets and accelerated international competition. Universities have been encouraged to obtain funds from non-government sources, such as research contracts, commercialisation of research results, and services to society at large. The increasing importance of funding diversification in European universities has been confirmed by recent studies (Estermann & Pruvot, 2011; Shattock, 2008).

This chapter is dedicated mainly to funding changes that took place in the past 30 years. However, our knowledge about higher education funding would be incomplete without understanding the context and rationales behind these changes. Therefore, we start this chapter with an overview of challenges for financing higher education, such as expansion, demographics, globalisation, the knowledge economy, rising costs and financial austerity. The second section presents the rationales for public and private financial support of higher education. Revisiting this debate is important for our understanding of the recent funding reforms and their outcomes. In the third section, funding changes are discussed and the fourth summarises the chapter.

1.1. Challenges for Financing Higher Education

1.1.1. Expansion of higher education

The expansion of higher education has led to several key transformations concerning its governance, management and funding. In this section we will give a brief historical overview of the expansion and discuss the implications for higher education funding.

In the early 1970s, American sociologist, Martin Trow, made the distinction between elite (under 15% of the relevant age group participating in postsecondary education), mass (between 15 and 40%) and universal (above 40%) forms of higher education (Trow, 1973). Based on this division, John Brennan (2004) provided a useful summary of these stages in higher education development: (1) elite—shaping the mind and character of a ruling class; preparation for elite roles; (2) mass—transmission of skills and preparation for a broader range of technical and economic elite roles; and (3) universal—adaptation of the 'whole population' to rapid social and technological change.

The level of enrolment in industrialised countries before the Second World War was roughly constant at 3-5% of the relevant age cohort. After the Second World War the demand for higher education increased tremendously. In many European countries, the proportion of the relevant age group enrolled in higher education, just after the war, was about 4 or 5%; only 25 years later it reached between 10 and 20%. By 2000, the figures in most European countries were up around 30% and growing further (Trow, 2006) (see Table 1 for comparative gross enrolment rates between 1980 and 2009). Several independent forces can be named behind this expansion: the democratisation of politics and society that followed the Second World War; the growth of the public sector that required more white collar workers and university graduates; a growing industrial economy that employed more highly skilled and educated workers; the widespread belief that further economic development depended on educated manpower, especially scientists and engineers; and finally, the attractiveness of the education itself as a major element of the new welfare states, sustaining and legitimating democratic societies

(Gibbons et al., 1994). There had been also almost everywhere a reform of secondary education, and a creation of comprehensive secondary schools instead of elite ones, which resulted in a growing fraction of school population that was eligible and motivated to enter some form of higher education (Gibbons et al., 1994; McNay, 2006).

Table 1 - Gross enrolment rates* by year and country

Country	1980	1985	1990	1995	2000	2005	2009
Austria	21	28	32	45	56	48	60
Belgium	25	31	37	53	57	62	67
Denmark	28	29	34	45	57	80	74
Finland	32	32	45	67	82	92	92
France	25	29	37	50	54	55	55
Germany	-	-	33	45	-	-	-
Greece	17	23	25	37	51	89	-
Italy	27	26	29	41	49	64	66
Netherlands	29	31	35	46	53	59	63
Portugal	11	14	20	36	47	55	62
Spain	23	27	36	46	59	67	73
United Kingdom	19	21	27	48	58	59	59

*Gross enrolment rate is a nation's total enrolment "in a specific level of education, regardless of age, expressed as a percentage of the population in the official age group corresponding to this level of education"
Source: UNESCO(2011)

As higher education systems grew, they were forced to adapt to new realities by going through several structural transformations. Philip Altbach (1999) distinguished the following topics, connected to the phenomenon of massification:

- the challenge of funding;
- new sectors of higher education, including private higher education, for-profit higher education, and new vocational institutions;
- distance learning as a means of coping with demand;
- the differentiation and complexity of academic institutions;

- the managerialisation of academic institutions, and creation of the "administrative estate";
- the nature of the academic profession; and
- diversity of students and student culture.

From the above topics, our study is mostly interested in the challenges for funding, although, it is fair to mention that all topics are closely interconnected. The demand for more higher education after the Second World War was accompanied by a financial effort on the part of the governments whose positive reaction can be explained by the dominant economic theory of the time, The Human Capital Theory, which presented education as a profitable public investment[1]. The share of gross domestic product (GDP) spent publicly on education increased rapidly during the 1960s. According to Eicher and Chevaillier (1992), on average, higher education expenditure around the world increased twice as fast as GDP during the first part of the decade and more than half again until 1970s. Although the public effort stabilised in the 1970s, it still increased in the majority of countries around the world until around the 1980s. Since then, a reversed trend can be observed, as most of the countries have either stabilised or reduced their public funding of higher education (see Section 1.1.6.).

As a consequence of expansion, higher education began to represent a substantial part of countries' economies and added to the increasing expenditures of welfare states' public sectors (Barr, 2004). The 1980s also saw a gradual breakdown of the consensus built up following the Second World War on the role of the state in funding not only higher education but public services in general (Hood, 1991). Thus, at the same time as expansion continued, the governments were less willing to invest in higher education without accountability requirements, and were also not able to invest at the same levels as they were investing in elite systems. There has been a variety of responses to this situation: from a greater rationalisation of public funding on the one hand (through competitive funding

[1] For Human Capital theory, see the works of the following authors: G. Becker "Human Capital: a Theoretical and Empirical Analysis, with Special Reference to Education" (Becker, 1994); T. Schultz "The Economic Value of Education" (Schultz, 1963); J. Mincer "Investment in Human Capital and Personal Income Distribution" (Mincer, 1958).

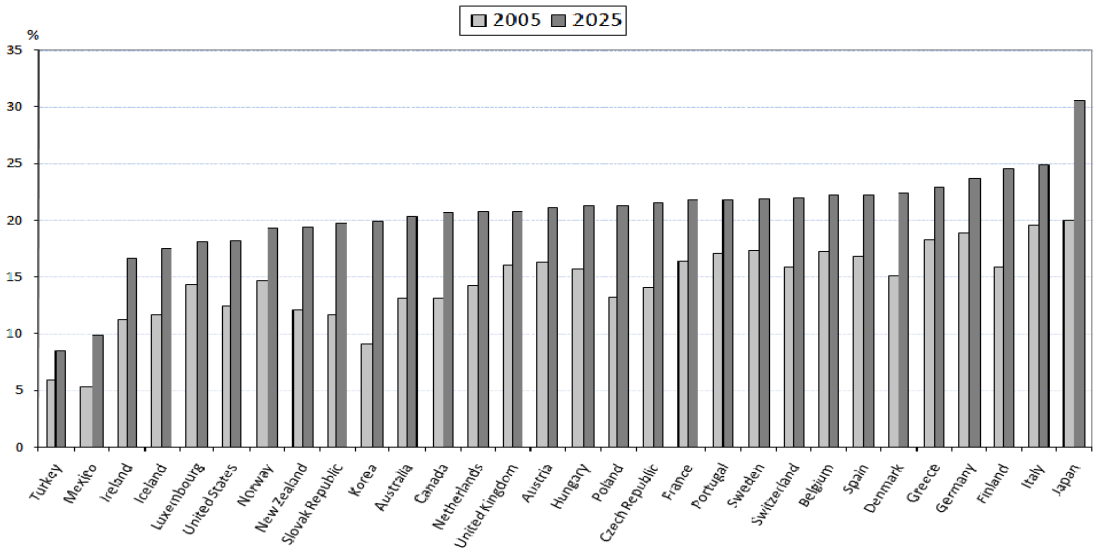
schemes; output criteria in funding formula, contract-based funding), to recourse to private funds (mainly through tuition fees) on the other (see in more detail in Section 1.3.).

The expansion of higher education presents a long-term trend as the demand will arguably continue to grow. The advent of the knowledge economy (see Section 1.1.4.) means that more complex skills, which require some kind of postsecondary training, are needed. For example, according to a skills forecast by the European Centre for the Development of Vocational Training, the demand for skills and qualifications is growing in most occupations due to the continuing rise of the service sector and technological and organisational changes. Most jobs in 2020 will be for those with high- and medium-level qualifications (around 32% and 50% respectively). The same source reports that while in 1996, 31% of jobs needed low-level or no qualifications, by 2020, this proportion is expected to fall to around 18%. Even jobs for unskilled manual workers are demanding more qualifications, while skilled manual workers will increasingly need medium-level qualifications (CEDEFOP, 2008). These data imply that the occupational structure of Europe is moving towards highly skilled and knowledge-intensive jobs. Given this scenario more and more individuals will consider entering or returning to higher education to improve their skills. This may present new challenges for higher education institutions in terms of their structure and governance, as more non-traditional students will be seeking some form of higher education (Trow, 2000).

1.1.2. Demographic challenges

The pressure on resources for higher education is also put by the demographic changes that most mature economies are facing. The birth rates have been declining in many of the Western European countries, Japan and Korea. The OECD latest data show that the ratio of the population aged 65 and over to the total population is predicted to exceed 20% by 2025 in 20 out of 30 OECD countries (Figure 1).

Figure 1 - Ratio of the population aged 65 and over to the total population



Source: OECD (2008)

The declining youth cohorts may present an economic challenge in terms of the declining workforce and thus reduction of public tax revenue and therefore an increase of burden on public expenditures (OECD, 2006b).

The change in family structure is yet another feature of demographics. There are more single parent families nowadays than in the post-war period, which implies changes in child support and women pensions' arrangements (Barr, 2004). These demographic changes imply that government resources have to be shifted into areas of health care, pensions, and social subsidies (Neave & Vught, 1991).

Demographic changes certainly mean more competition for students and for funds. Part of the strategy to attract more students may lie in the efforts to enrol more international students and expand life-long learning opportunities.

1.1.3. Globalisation

Anthony Giddens (1990) defined globalisation as the intensification of worldwide social relations which link distant localities in such a way that local happenings are shaped by events occurring many miles away and vice versa. Thus, globalisation is associated with deterritorialisation, meaning that geographical location of

participants in social events cease to play the fundamental role. As Scholte observes, “global events can occur almost simultaneously anywhere and everywhere in the world” (2005).

These “events” represent different social activities, such as, for example, economic, political and cultural. In economic terms globalisation has been described as integration of national economies through trade, foreign direct investment, capital flows, migration, and the spread of technology (Sander, 1996). In relation to politics, some authors conceptualise globalisation as Westernisation, Americanisation, or a new colonisation (see Scholte, 2005 for an overview of meanings). Political globalisation is also manifested through supranational organisations such as the European Union, or World Trade Organisation, for example. The advancement of modern technologies also intensified cultural exchange through the movement of images, symbols, and ideas (Held et al., 1999)[2].

For higher education globalisation may mean several things: the increased internationalisation of teaching and research, the increased competition, the changing role of national governments, and the new meaning for regional policies (Enders & Fulton, 2002; Marginson & van der Wende, 2006).

The competition among research universities has intensified greatly not only in their ability to secure sufficient funding and conduct collaborative research but also in attracting large student bodies. Universities are establishing campuses all over the world (for example, Monash University in Malaysia and South Africa), forming alliances with local institutions, and creating virtual courses. Any online course programme is by its nature global, and there appeared a number of global online consortia (for example, Universitas 21) (Newman et al., 2004). For several countries, namely the United States, the UK and Australia, higher education has become a marketed commodity and the way to earn extra resources (Marginson,

[2] For more theoretical discussion about globalisation, see inter alia, Malcolm Waters “Globalization” (1995); James H. Mittleman, editor, “Globalization: Critical Reflections” (1996), George Ritzer, editor, “The Blackwell Companion to Globalization”(2007).

2006). For example, in the UK between 1995 and 2000, income from full-fee paying students increased by 27.9%, compared to an increase in total income of 8.6% (OECD, 2004). However, the competition for foreign students is not confined to English-speaking countries any more. According to a report published by the Academic Cooperation Association, the number of programmes taught in English in non-English-speaking countries tripled in the five years from 2002 to 2007, to more than 2,400 (Labi, 2009). It has to be mentioned though that the degree of involvement in globalisation or the influence of globalisation will be different depending on location, language of use, academic culture and the type of institution. For instance, research-intensive universities as mentioned earlier tend to be more implicated in globalisation (Marginson & van der Wende, 2006).

It has been noted by several observers that one of the effects of globalisation is the weakening of the nation-state and its reduced social obligations (Henry et al., 2001; Neave, 2002). It can be argued that governments might be forced to partly withdraw from the higher education system because intensified international tax competition restricts their ability to raise the necessary revenues. Moreover, increasing mobility of skilled workers means that the social returns to education often do not accrue in the country that has financed the accumulation of human capital, thus reducing the incentives to subsidise education. It also means that the share of regular, steady salaried labour is declining in a large number of countries, and thus the share of payroll tax base in the GDP is shrinking (Kwiek, 2006). As the welfare state struggles to preserve its core services – basic education, state, defense and social security – higher education institutions may find that their current funding base is increasingly eroding.

Another implication of globalisation noticed by some observers is the convergence of national policies regarding higher education (Sporn, 2003a; Teichler, 1998). Parallel reforms by different autonomous national governments follow common ideas and templates, which tend to produce some convergence and facilitate inter-connectivity between different national higher education systems. Globalisation is taking place throughout the integration processes in Europe and European higher education. Although the current consensus is that there is no common European

policy for higher education, two major policy initiatives stand out. One is the Bologna Process, which started a series of reforms in individual countries to make higher education in Europe more compatible and comparable, more competitive and more attractive for Europeans and for students and academics worldwide (OECD, 2008b). Another initiative is the Lisbon Strategy, an agreement reached in 2000 to modernise higher education as a means to promote economic growth through research and innovation and create high quality jobs by 2010. The Lisbon strategy was replaced in June 2010 by Europe 2020 strategy where education, training and lifelong learning continue to play key roles.

The above mentioned developments suggest several opportunities for revenue generation on the part of universities: full cost or almost full cost tuition fees for international students, online courses, public-private cooperation, international research funding, university-industry partnerships, etc. In order to take advantage of these opportunities, universities should arguably become more entrepreneurial and outward looking. However, the impact of globalisation on social and political spheres of society poses some threats to higher education funding as well, namely in the reduced commitment of governments and tax payers to support higher education from taxpayer revenue.

1.1.4. Knowledge society

Another phenomenon that has been transforming contemporary societies and which has been extensively discussed by social scientists, is the advent of the *knowledge society*. The concept of the knowledge society refers to the progressive transition from an industrial society to another form of society based on knowledge. It is connected with the "post-industrial society" of Daniel Bell (1973) and Peter Drucker (1969), the "learning society" (Husén, 1974) and the "network society" of Manuel Castells (Castells, 2000)[3]. Described in a simple way,

[3] "Post-industrial society" is a concept describing a stage in society's development when the service sector generates more wealth than the manufacturing sector of the economy. "Learning society" posits that education is a key to a nation's economic development and should extend beyond formal learning. A learning society recognizes that learning cannot be separated from society and it is not just for the young, but for all, throughout their lives. "The network society" is a social structure based on networks operated by information and communication technologies based in microelectronics and digital computer networks that generate,

knowledge society is a society based on the penetration of all its spheres of life by scientific knowledge (Boehme & Stehr, 1986).

While the use of knowledge is not new to mankind, its unprecedented spreading due to the advances in information and communication technologies has made the idea of a *knowledge society* exceptional. A related concept is a *knowledge economy*, which is based on the incorporation of knowledge in the production process. Writing in the early 1990s, Drucker (1993) noticed, that knowledge was becoming the only meaningful resource, while basic economic resources - land, labour and capital – were being pushed to the side-lines:

> That knowledge has become *the* resource, rather than *a* resource, is what makes our society "post-capitalist". It changes fundamentally the structure of society. It creates new social dynamics. It creates new economic dynamics. It creates new politics.

As institutions of knowledge production and transmission, universities find themselves among the main actors of the knowledge society and the knowledge economy. Not only do they educate "knowledge workers" (Drucker, 1994) but they also possess the necessary resources, from libraries, to laboratories, computer networks for research, innovation and technological advance.

The growth in the economic significance of knowledge, the use of academic research in industry and society's growing interference with the research process gave rise to several challenges for higher education institutions (van der Wende, 2009b). Responses to the global competition in which knowledge is a fundamental factor are increasingly shaping policies for the European higher education (European Commission, 2003). In this context, the greater emphasis is placed upon research universities as the source of innovation and wealth generation. Remarkable in this respect is the movement towards the creation of world-class universities (Salmi, 2009):

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process, and distribute information on the basis of the knowledge accumulated in the nodes of the networks (Castells, 2005).

> No longer are countries comfortable with developing their tertiary education systems to serve their local or national communities. Instead, global comparison indicators have gained significance in local development of universities. These world-class universities are now more than just cultural and educational institutions—they are points of pride and comparison among nations that view their own status in relation to other nations.

In this regard, Guy Neave speaks of the emergence in Europe's higher education systems of a "temporarily protected" sector, consisting of highly-performing research universities at the apex and at the base a "market-driven" mass sector. The latter, whilst not private, would nevertheless compete ferociously for public funding and for whatever largesse it could garner from private sector sources (Neave, 2009).

1.1.5. Rising costs

The financial pressures brought about by massification, demographic challenges, and globalisation, have been exacerbated by the trends on the cost side. Rising institutional costs have been the focus of an extensive debate, especially in the U.S. (Clotfelter et al., 1991; Massy, 1996; Newman et al., 2004).

One explanation for rising costs has been the increased competition between higher education institutions. Higher education institutions must provide services that students wish to purchase. Prospective students may be attracted by faculties with stronger reputation, better facilities, and services that improve student experience. The market-driven competition – for higher rankings, greater scholarly prestige, a deeper applicant pool and a greater market share of top students and research contracts – also drives up academic and administrative staff salaries and institutionally-born costs for research (Johnstone, 2008).

The second reason might be, what Massy (1996) called *the growth force*. According to this argument the opportunities for education, research and knowledge itself grow without limit. Bok (2003) compares universities to compulsive gamblers and exiled royalty: there is never enough money to satisfy their desires. They are constantly asking for more programmes, books, equipment,

more of everything required to satisfy their desire to pursue new interests and opportunities.

The “cost problem” of higher education institutions is also described as a function of the labour-intensive nature of education and the difficulty higher education institutions face in improving their productivity. This phenomenon is called “cost disease” and was first described by Baumol and Bowen (1966) who applied it to performing arts, namely to a string quartet. Lately, it was applied to other service industries (Baumol, 1996). In general economy productivity per worker can be increased, for example, by using more machinery, by investing in new equipment that embodies new technology, or by other means. As a result the amount of labour time needed to produce a physical unit of output declines over time (Heilbrun, 2003). Productivity gains in the rest of the economy will tend to allow average wage levels to increase with the general price levels plus the rate of increase in average productivity. Academic staff salaries must increase at the same rate as other wages in the economy if the academic career is to remain attractive. Yet, higher education may have smaller gains in productivity if student to academic staff ratios are difficult to change (Getz & Siegfried, 1991). Moreover, these ratios are often perceived as surrogates for academic quality (Massy, 1996). Academics are also arguably somewhat reluctant to accept measures of efficiency (for example, cuts in staff and academic programmes, cost containment measures, etc.). It is also not always possible to substitute the human labour by equipment or to move production where the unit costs would be smaller (Johnstone, 2006).

Some authors do not agree with the “cost disease” phenomenon in higher education and argue that significant productivity gains are possible. As, for example, Massy (1996) points out, traditional budgeting processes of maintaining the level of expense from previous years without budget adjustments are discouraging a search for more cost-effective educational methods. Hence the cost disease becomes a self-fulfilling prophecy. Using technology is another way to increase productivity. Newman et al. (2004) report the results of a study of thirty

U.S. institutions which analysed introductory online courses in a number of disciplines and found an average of 40% cost savings (Twigg, 2003).

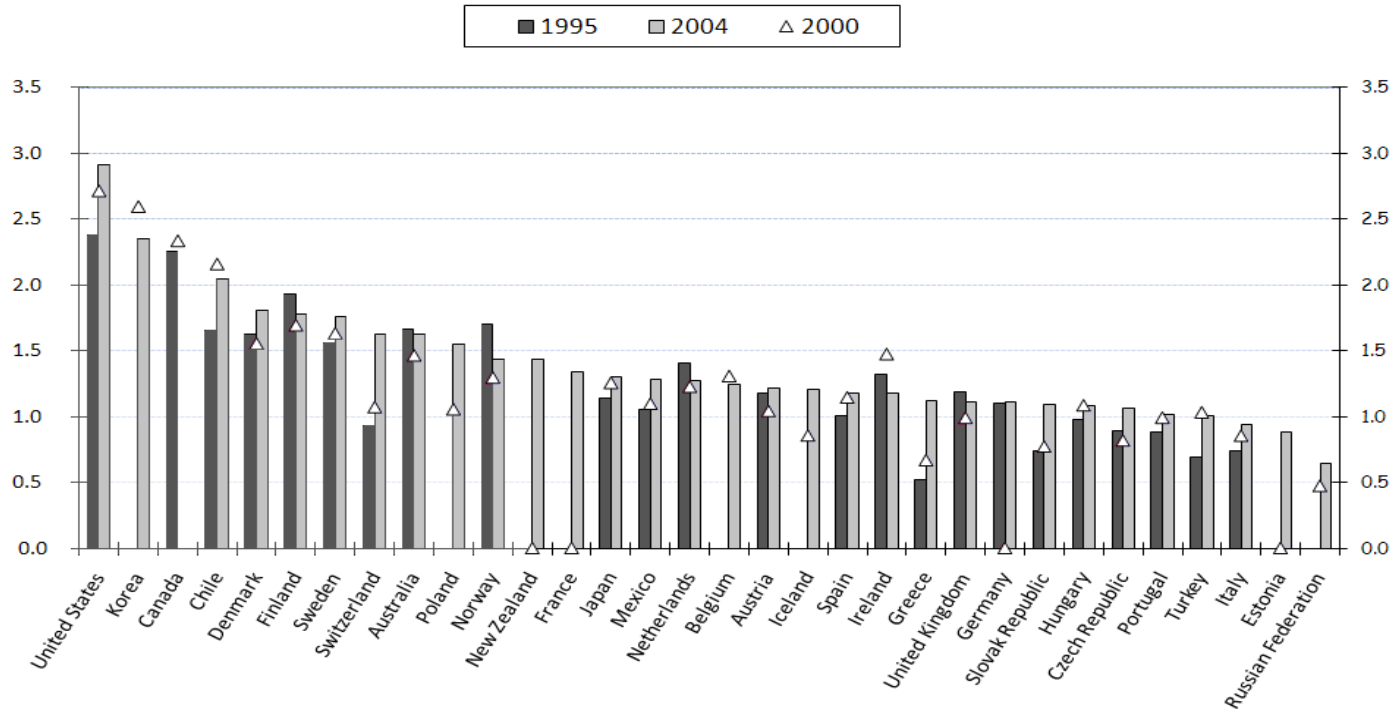
We assume that both points have some truth in them. However, rising costs in higher education cannot be solely attributed to the lack of productivity and efficiency gains. Rather, it may be assumed that the natural trajectory of costs tend in most years and in most countries to outpace the natural trajectory of revenues (Johnstone, 2008). It may be less true for the European countries where costs are more controlled; but even there with the increased marketisation and competition in higher education first signs of “out-of- control costs” can be detected.

1.1.6. Financial austerity

Financial austerity can be defined as a state of reduced spending and increased frugality in the financial sector. Austerity measures generally refer to measures taken by governments to reduce expenditures in an attempt to shrink their growing budget deficits. In the context of higher education, there is a perception in some OECD countries that the expansion has led to underfunding of higher education, especially where it mostly relies on public support. While this may be true for some countries, this is not a uniform phenomenon, as we will see further.

Figure 2 shows that in most OECD countries expenditure on higher education institutions as a percentage of GDP has grown over the years. Comparing the proportion of GDP dedicated to higher education institutions between 1995 and 2004 it can be noted that significant increases were observed for the United States, Chile, Switzerland, Greece, Turkey and the Slovak Republic. By contrast significant decreases were observed in Finland, Norway, the Netherlands, the UK and Ireland.

Figure 2 - Expenditure on tertiary education institutions as a percentage of GDP, 1995, 2000 and 2004

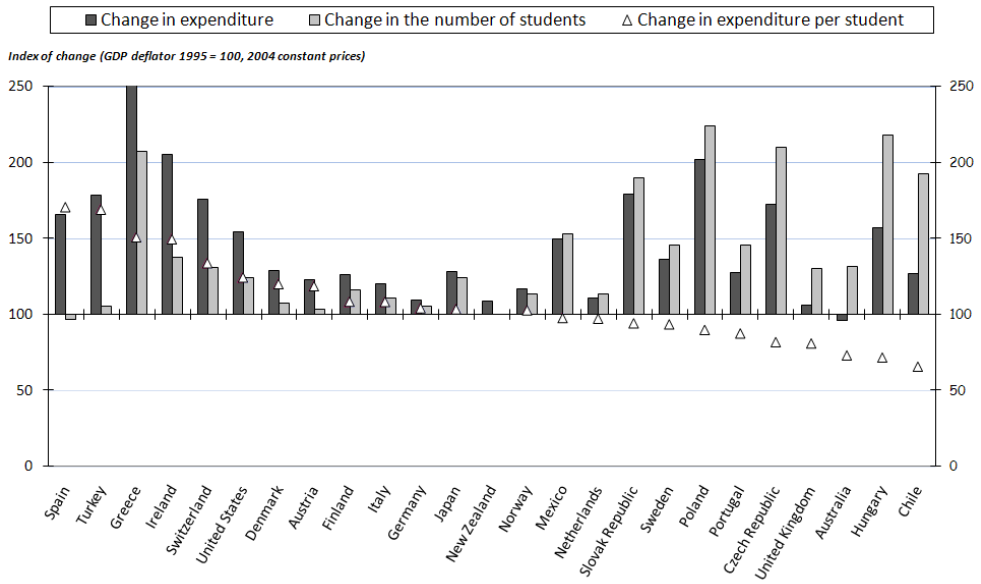


Source: OECD (2008)

However, if we take into account the expansion in enrolments the budget growth seems to be more modest. Figure 3 shows that this has declined significantly in more than half the countries with sharper decreases in Chile, Hungary, Australia, the UK, the Czech Republic and Portugal. If we compare both figures, we can see that decrease in GDP share spent on higher education and the decrease in per student expenditure between 1995 and 2004 has simultaneously occurred in Australia, the Netherlands and the UK. At the same time, the percentage of private expenditure rose in most countries (Figure 4). The rise in private spending is particularly noticeable in Anglo-Saxon countries, some post-communist economies, and those Western European countries that introduced or increased tuition fees or student loans in the past decade or so.

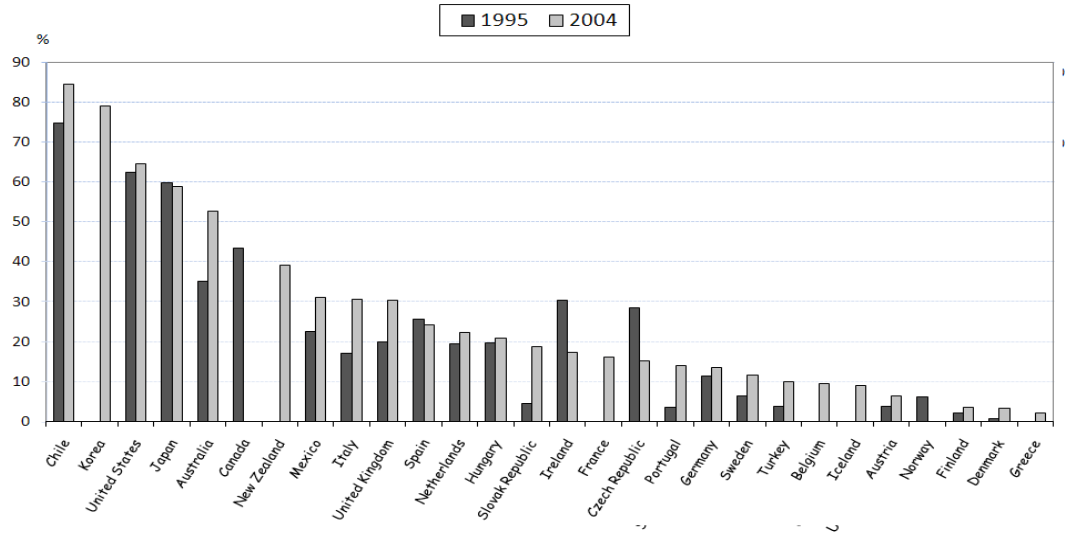
The sharper increases can be observed in Portugal, Australia, the UK, Italy and the Slovak Republic. In Portugal the increase in private funding can mostly be attributed to the increase in tuition fees in the academic year 2004-2005 (we will speak about Portuguese higher education funding in more detail in Chapter 4, dedicated to national context).

Figure 3 - Change in expenditure per student on tertiary education institutions between 1995 and 2004, public sources



Source: OECD (2008)

Figure 4 - Relative proportion of private expenditure on tertiary education institutions, 1995 and 2004



Source: OECD (2008)

This brief analysis of funding trends has shown that the decline in public funding in absolute terms has occurred only in a small number of countries (Vincent-Lancrin, 2009). This finding is consistent with that of the CHINC project ("Changes in University Incomes: Their Impact on University-Based Research and Innovation") that analysed data from 11 European countries from 1995 to 2003 (participating countries: The Czech Republic, Denmark, France, Germany, Hungary, Italy, The Netherlands, Norway, Spain, Switzerland, and the United Kingdom) (CHINC, 2006). The authors concluded that evolution of public and private funding has been quite different according to the countries: for example, while in the UK public funding strongly decreased, in Switzerland, resources per student stayed quite stable; while student fees increased or were introduced in some countries, there are still many countries where tuition fees do not exist or are very low.

Despite country and regional differences in funding situation, many higher education leaders feel that it is harder to receive public funds due to the increased competition and demands attached to funding; and that institutions have to do more with the same amount of money coming from the state. Johnstone (2002)

describes this climate as “financial austerity” and explains it to be a function of several forces. We have already mentioned some of them: higher education expansion, globalisation and rising costs. Another is the aforementioned pressure on public budgets from pensions and other social welfare costs, namely health, basic education, defense, public order, etc. Additionally, taxation in many industrialised countries is also getting technically more difficult as the increasing globalisation encourages productive enterprises to move to countries with lower wages and lower taxes (Johnstone, 2008).

The financial austerity has been aggravated by a challenging economic reality that the world has been facing since 2007. Economic crisis has placed great strains on public budgets. The impact of the crisis led to different developments across the world. An EUA report (EUA, 2011) was able to identify different effects of the economic crisis on public funding of higher education across Europe. For example, Latvia has faced major budget cuts of 48% to the country's 34 higher education institutions during 2009. In Italy, universities’ public funding was expected to be reduced by close to 20% by 2013 and in Greece the government has set a target to cut universities’ academic and maintenance budgets by 30%. Some cuts were also experienced by higher education systems in Ireland, Iceland, Estonia, Romania, countries of Eastern and South Eastern Europe. In Austria previous promises to increase public funding have been discarded due to the crisis. In Belgium their regional governments have abandoned previous plans to increase funding. Other EU member states have decided to meet the crisis with more investment into the higher education sector. France has increased its public funding of universities in relation to previous years while Spain has increased scholarships. Germany has created economic stimulus packages and the UK has set up a €71 million "Economic Challenge Investment Fund" to enable universities to respond rapidly to the needs of employers and individuals during the crisis. However, the UK higher education will have to take up to a 40% cut of its current budget until 2014 - 2015, as announced in the 2010 Comprehensive Spending Review.

In general, global recession has accelerated discussion of a more prominent role for private contributions, under the rubric of gaining a more diversified funding portfolio (Douglas, 2010). This discussion is accompanied by the qualitative transformation of higher education public governance and economics. Vincent-Lancrin (2009) points out the following changes in this direction:

- Changes in the legal and funding relationships of public higher education institutions and public authorities, which are encouraged to raise more private funds and act in a more entrepreneurial way;
- Changes in the employment system and job content of academics: the academic profession is changing to become closer to a business-like employer-employee relationship; and
- Changes in the perception of the sector, which is increasingly seen as a regular economic sector.

While there are greater demands placed on higher education institutions, they are not everywhere supported by adequate public funding. This has led some authors to speak about a clear paradox: “higher education is seen as more important than ever before in terms of competitiveness between nations, but though the importance of “knowledge” in our societies is greater than ever, at the same time, along with the pressures to reform current welfare state systems, the capacity of national governments to finance higher education is considerably weaker than in previous decades, and may tend to be even smaller in the future” (Kwiek, 2006, p. 17). In this context, the issue of revenue diversification has become highly important in the dialogue about new approaches to funding of higher education. Although public funding will probably (and many would argue, should) remain the main source of income for public higher education institutions, private sources, as we will further demonstrate, have been gaining significance.

1.2. Rationales for Public and Private Financing of Higher Education

Current economic circumstances are pressing public officials and educational leaders to revise important public policy questions about who pays for, who benefits from, and who should pay for higher education. In this section we will briefly revise the main rationales for public and private financing of higher education from the economics of education point of view.

Governments all over the world intervene heavily into the higher education sector, both in financing and in provision (Ziderman & Albrecht, 1995). They set priorities and regulate the activities of higher education, provide public funds for both universities through direct budget allocations and for students and their families through various student support schemes and tax deductions. The question is: why is it so? Why cannot higher education be left to regulation by market mechanisms, that is, through uncoordinated decisions of students and their parents?

The basic rationale for state intervention into higher education is the existence of positive externalities or spillover effects[4]. The argument can be formulated in the following way. Facing the decision of entering higher education individuals may underestimate the importance of positive externalities that accrue to society as a whole and therefore will not invest sufficiently. Seemingly, private providers will be likely to invest into areas that promise high private returns in order to attract more students, leaving socially important areas, such as teacher training and social work for example, underprovided. Therefore, state subsidies to higher education are justified "to ensure an adequate supply of higher educated individuals to meet wider societal needs" (Ziderman & Albrecht, 1995). There is however a difference in treating externalities from research and undergraduate education. It is recognised by economists that externalities from research are very important since research results are widely disseminated and discoveries can benefit future

[4] Positive externalities occur when some activities generate external benefits which cannot be marketed because they cannot be confined to individual agents. We would all be better off if more of these activities were carried out. Because they are not registered in prices, the market mechanism provides no signals to guarantee their optimum supply (Blaug, 1972, p. 105).

generations (McMahon, 2009). In relation to externalities from undergraduate education, this is the area of higher education finance where evidence on the existence and magnitude of externalities is reported to be quite scarce (Blaug, 1972; Cohn & Geske, 1990; Psacharopoulos & Patrinos, 2002). However, recent studies of higher education externalities bring new insights into this previously poorly understood area (McMahon, 2009).

Higher education externalities can be subdivided into monetary and non-monetary ones. The most cited monetary externalities are increases in productivity of not only the person being educated but also productivity of his co-workers and physical capital; and a more effective creation and adoption of new technologies. Human capital formation and its role in the diffusion of knowledge is the focus of Romer's (1986, 1990) endogenous growth theory. According to Romer, economic growth is a function of research and development, the latter depending on the share of human capital allocated to the research sector. Economic growth can be increased through investment in human capital, which is the sum of all of a nation's human knowledge. Through education, training and other investments in human capital, a country can increase worker productivity and increase economic growth.

The non-monetary benefits include the civic engagement and the promotion of the democratic society (Hall, 2006). For example, recent studies have generally arrived at the conclusion that education increases voter participation (Dee, 2004). Other non-pecuniary externalities relate to the following areas: development of democratic political institutions, charitable giving and volunteerism, improved human rights, increased life expectancy, crime reduction, improved environment and increased social capital and happiness (McMahon, 2009). McMahon presents empirical data from various studies regarding the above-mentioned externalities and provides methods for measuring their value.

The lack of specific knowledge about these social benefits as well as private non-monetary benefits is another source of market failure likely to lead to underinvestment. There has been made great progress in providing information

about the contribution of higher education to earnings (i.e. private monetary benefits) and the employability of university graduates, for example. University rankings and league tables may as well cast some light on the quality of a higher education institution. However, the criteria used in their elaboration have been vastly criticised and there have been expressed doubts whether they are able to provide information that would be unbiased and valid for all types of students (Santiago et al., 2004, Rauhvargers, 2011). Institutional web sites also provide information regarding programmes offered, student/teacher ratios, library facilities, etc. Still, higher education operates in markets with "asymmetric information", where customers might not really know what they are buying and of what quality. This is partly explained by the fact that education belongs to the so-called "experience" goods, i.e. goods whose quality and price is difficult to observe in advance, but these characteristics can be ascertained upon consumption. Additionally, due to the expansion of higher education and its diversification, it is increasingly difficult to gather and evaluate information about all possible choices. Moreover, not all school graduates are equipped with skills necessary to process the sea of information, especially those from the economically challenged backgrounds. The awareness of non-market private benefits is even more complicated, according to McMahon (2009). Not all students know how higher education will contribute to their longevity, health, happiness and quality of life. The implication is that the poor information leads to underinvestment in education.

Besides the above mentioned rationales, there are at least two other major arguments in favour of public support of higher education: capital market imperfections and equity concerns. Capital market imperfections imply that investments in higher education involve risks for students because they are uncertain about their abilities and future jobs. This uncertainty may make it difficult for students to borrow education loans through private banks. The same is true for lenders, who do not know if a particular student will succeed in his education, and if he will repay the loan in the future. On the other hand, private banks are reluctant to offer student loans as human capital cannot serve as collateral and individual behaviour and individual characteristics that influence the return on

human capital investment are hard to monitor by banks. To prevent an underinvestment in education, governments may intervene by offering the so-called collective insurance for all individuals and all lenders against the failure of the investment in any particular case (Williams, 1999). This may take the form of either guaranteed bank loans or government provided loans.

Another argument for government subsidisation of higher education relates to equity concerns. This is a concept subject to various interpretations in policy contexts (Le Grand & Bartlett, 1993) but in relation to education it is often translated into equality of educational opportunity regardless of one's socio-economic background, ethnic origin or gender. The argument originates in the idea that higher education must be accessible to all individuals able to study, regardless of their economic resources. From this point of view, public subsidies at the moment of attendance can equalise entrance opportunities for potential students from different socio-economic backgrounds (Canton et al., 2001).

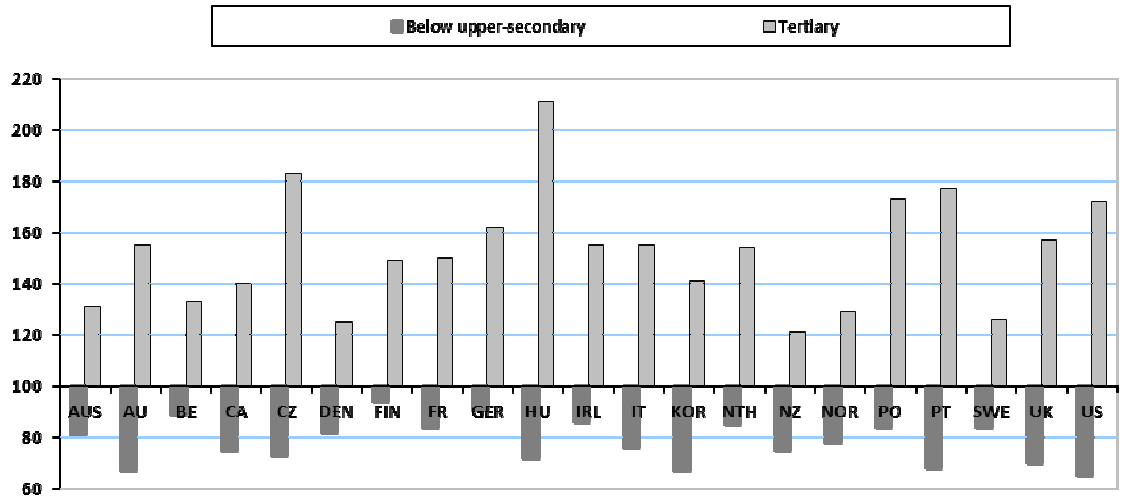
Based on some economic as well as non-economic considerations presented above, it can be concluded that some public intervention in higher education funding is desirable, especially if one takes a human capital perspective. Now we will present the argument for private investment in higher education.

There exists overwhelming evidence that students receive significant private benefits from their degrees (Barr, 2004, p. 324). The case for private funding of higher education rests on the following pillars: higher individual earnings, greater employment quality and non-monetary benefits.

Education provides not only an initial earnings advantage but also a wage premium that increases with time spent in the labour market. The measure typically used to assess the profitability of investment in higher education is the internal rate of return which is defined as the discount rate that equates the real costs of education during the period of study to the real gains from education thereafter (Bloendal et al., 2002).

Private internal rates of return calculated for 2001, for example, vary from 4 to 14% for the 21 OECD countries. The average return is 8.5%. The highest private rates of return have been registered for Australia, Ireland, Luxembourg, Portugal, Switzerland and the United Kingdom (Oliveira Martins et al., 2007). Figure 5 shows the difference in income of individuals with tertiary education versus those with education below upper-secondary level. The reference year is 2005 or the latest available. It is necessary to mention though, that rate-of-return studies look at averages and do not account for possible differences resulting from the length of programme, field of study and type of higher education institution attended (Vossensteyn, 2005).

Figure 5 - Income of individuals aged 25-64 with tertiary education in relation to others with below upper-secondary education (year 2007 or the latest available) (high school education =100)



Source: Education at a Glance (OECD, 2009)

The empirical literature also provides strong evidence that better educated people are more likely to be in the labour force and are faster to find a job if unemployed. Mincer (1993) explains why more educated workers have lower unemployment: "the more informed the job search, the more likely is a successful job match, hence the longer are workers likely to stay on the next job."

Individuals attending higher education also derive non-monetary benefits from it. The literature has identified the following non-monetary private benefits (McMahon, 2004):

- Better individual and family health;
- Cognitive development of children;
- Fertility, family size and poverty reduction (as private benefit);
- Consumption efficiency (better consumer choices);
- Higher return on financial assets;
- Reduced obsolescence of human capital via new leisure-time learning;
- Non-market job satisfaction;
- Greater amenities in urban life;
- Pure consumption effects (e.g. enjoy student life while in HEI over work).

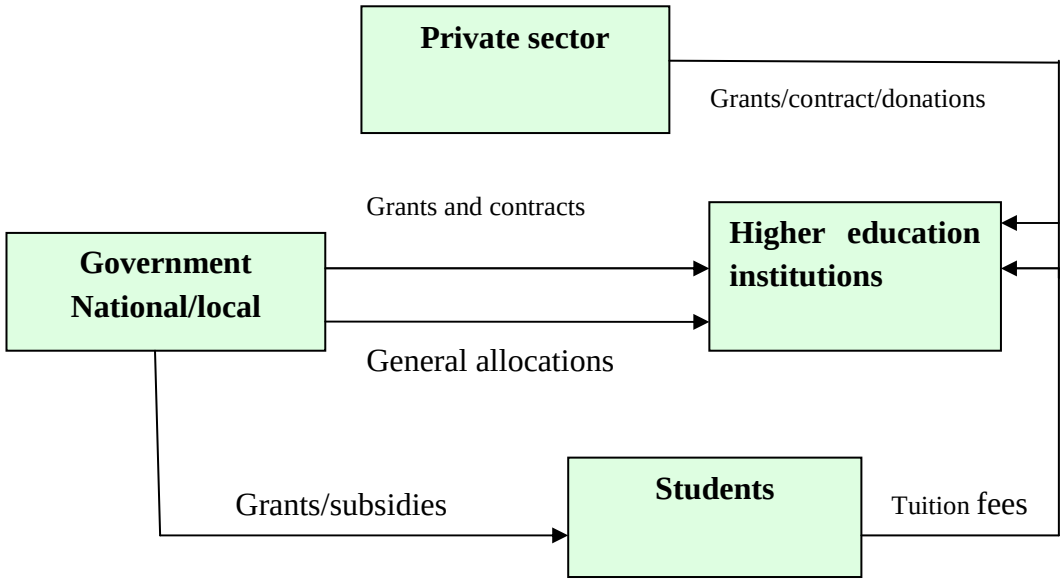
We began this section with questions about who pays, who benefits and who should pay for higher education. Economic theory provides arguments in favour of both public and private financing of higher education but it does not tell what the optimal mix between them is, neither the right amount to invest in higher education. The answers to these questions are not only based on economic considerations. Total public expenditure on education is determined by a political process that is only vaguely connected with economic or non-economic objectives (Blaug, 1972, p. 129). The nature of the political system, the characteristics of political decision making processes across countries, as well as the ideologies of political leaders may be of greater importance. Last, but not least, it may just be historical decisions, which force an economy on a path that leads to the establishment of a certain educational policy. These early decisions may not be easily challenged even after hundreds of years. Questioning a policy with a long tradition always provokes resistance. Lindblom (2001) calls this type of decisions “prior determinations”; they come from law, custom and historical accident. Some of these determinations are being revised today, and they will continue to be so in the future.

1.3. Changes in Higher Education Funding

Funding of higher education is a complex issue which is connected to broader governance instruments that enforce common goals (e.g. access, efficiency, quality) or provide incentives for higher education. In Section 1.1 we presented several issues that influenced higher education funding in the past 30 years or so. These issues have implications for such areas of funding as the share of public and private financing; autonomy and accountability and the role of the state in regulation of higher education. In Section 1.2 we gave an overview of rationales for public and private funding, so that they can serve as a background to funding changes to be described further. We will start this section with a brief description of funding channels, then proceed with funding reforms in teaching and research (Sections 1.3.1 and 1.3.2), and outline trends of private finding, including cost-sharing (Section 1.3.3).

Higher education institutions can be funded from three main sources: governments, students and households and other private entities (Figure 6).

Figure 6 - Main funding channels of higher education



Source: Jongbloed (2004)

Government funding includes allocations for operating expenses (for both teaching and research), capital investment and research grants and contracts paid directly to institutions. Indirect public funding includes public transfers to the private sector in the form of grants, loans, tax relief, etc. Student payments include tuition fees and charges for ancillary services. Here we may differentiate payments made by students themselves, which requires a student loan programme, or another arrangement where student is the borrower; and parents or extended family, where contributions on behalf of the student are made from current income, or past income, savings, or parental borrowing (Johnstone & Marcucci, 2010). Other private payments and resources include private donations and gifts, and payments for consulting, patents, and other services (Jongbloed, 2004). In this section we will analyse the changes in the way public funds are made available to higher education institutions.

1.3.1. Changes in funding mechanisms for universities' operational grant

As noted by Gareth Williams (1984), "mechanisms of finance evolve as particular arrangements show themselves inadequate or inappropriate for changing circumstances". The need for devoting more resources to higher education systems due to expansion and other contextual factors coupled with the limited ability of governments in many countries to provide sufficient funds (Section 1.1) has put pressure for greater efficiency and accountability in the use of public resources. The allocation of public resources by bureaucratic means, when either formally established rules by the government or other authoritative body must be followed, or special permission must be obtained for authorisation to use resources in ways not sanctioned by the rules, has been criticised for its rigidity and inefficiency (Williams, ibid.) . The reforms that were implemented in the majority of Western European countries during the 1980s and 1990s were aimed at the introduction of quasi-markets[5] to the various sectors of the welfare state,

[5] The welfare quasi-markets have the following characteristics: non-profit organisations competing for public contracts, sometimes in competition with for-profit organisations; consumer purchasing power either centralised in a single purchasing agency or allocated to users in the form of vouchers rather than cash; and, in some cases, the consumers represented in the market by agents instead of operating by themselves (Le Grand & Bartlett, 1993).

including higher education. The objectives of these reforms were to increase external and internal efficiency and organisational responsiveness to clients' needs, to foster competition, to separate client-agent roles and to further accountability (Herbst, 2007, p. 82).

At the same time the move (or, the push) towards increased institutional autonomy has been spreading across Europe (Neave, 1998). The concept of institutional autonomy includes elements of financial, organisational, staffing and academic autonomy. Institutional autonomy is usually increased through decentralisation and deregulation policies. "Deregulation and decentralisation both result in a shift of the role of government, from having extensive control over higher education to less control and more focus on steering the system. Efforts to deregulate strip away the burden of excess rules and regulations, easing the heavy but protective hand of central legislation" (Newman et al., 2004).

In regards to funding, deregulation has been manifested by the move away from line-item budgets towards block grants. In relation to line-item budgeting, it afforded the state a substantial transparency of university costs, which was justified in times of higher education systems' expansion during the 1960s, 1970s and in some cases 1980s (Williams, 1984). At the same time, it systematically inhibited a university's capacity to manage its own resources (reallocate between items, use one year's surplus in another year, etc.), because the budget was tied to specific types of expenditure and not to specific activities (Orr et al., 2007). The examples of countries that still used line-item budgeting in 2008 are: Greece, Korea, Mexico (for institutions created before 1997), the Russian Federation and Switzerland (OECD, 2008b). Contrary to itemised budgets, block grants (or lump sum budgets) cover several categories of expenditure, such as teaching, other ongoing operational costs and/or research activities. The funds are distributed internally across various units and activities and can be spent according to institutional priorities.

The move towards giving recurrent funding to institutions as a block grant was accompanied by the introduction of more objective formulae (as opposed to

historical method or budget negotiation) for allocating these funds to institutions. Many national systems introduced formula funding during 1980s - 1990s (Jongbloed, 2009). These formulae introduced more uniformity across the higher education system by avoiding the lengthy process of negotiation with institutions and relying on past funding levels which had often resulted in inequalities between institutions. The administration of a formula is also its attractive feature: once established, the application is quite straightforward. According to a Eurydice study (Eurydice, 2008), in 2006, 25 out of 30 European countries were using formula-based funding.

While defining the criteria for funding formulae governments can decide on the following system priorities (Salmi & Hauptman, 2006):

- increasing access to, and equity in, higher education;
- increasing the external efficiency of higher education systems by improving both the quality of the education provided and the relevance of programmes and of graduates in meeting societal and labour market needs;
- improving the internal efficiency and sustainability of higher education systems by containing per student costs and improving how the resources are allocated; and by raising the rates of degree completion.

Criteria used in the funding formulae which relate to the size of the institution (input criteria), such as number of enrolled students, number of first year students, number of staff, or number of academic staff, have prevailed in many higher education systems through the 1990s (OECD, 2008b)[6]. Compared to the 1990s,

[6] There is a number of issues that have been noted regarding enrolment-based formula systems, namely, what course load constitutes a full-time status, how to differentiate between full-time and part-time students and whether the number of students that will be funded is capped or not. Most funding formulae are based on some measure of students enrolled multiplied by a cost per student. This can be calculated differently: based on actual cost per student as reported by the institution, based on system-wide average cost per student and based on normative costs. The latter approach uses the optimal staff/student ratios and other standardized efficiency measures to calculate what the cost per student ought to be (Salmi & Hauptman, 2006, pp. 11-12).

when there were only a few countries where output-related criteria played an important role (Denmark, Netherlands, Poland, Sweden and the UK), in 2010 there were almost twenty countries in the OECD where elements of performance were driving the budget of higher education institutions (Jongbloed, 2010). Improved efficiency, and quality in higher education are the primary objectives as well as the main justifications for performance-based funding. The examples of output indicators incorporated in the formula or the budget negotiations are: the number of credits accumulated by students (e.g. Norway, Sweden), the number of degrees awarded (e.g. Netherlands), the number of students who pass their exams (e.g. Denmark). These are the outputs universities are able to control – at least to a large extent. Other output indicators, which lie a bit further away from the sphere of control of universities, would be: the relative success of graduates on the labour market, the number of graduates working in jobs related to their training ("graduate placement"), or the success of universities in generating additional funding from contract activities.

Among European countries, Denmark was the pioneer in the adoption of a fully output-oriented funding mechanism. The 1992 higher education reform consisted of a new funding system combined with a decentralisation of the government structure (Canton et al., 2001). The "taximeter model" uses a simple output criterion to determine the level of funding to a higher education institution. Universities receive between 30% and 50% of their funding in proportion to their education production, i.e. the number of students who pass their examinations and progress normally towards the award of their degrees. The remainder is given through fixed appropriation in the budget law (Ginnerup et al., 2007). Denmark was followed by Sweden and the Netherlands, where university funding is based on the number of awarded degrees or accumulated credits (Vossensteyn, 2004). Other European examples include England where the recurrent expenses formula is paid on the basis of the number of students who complete each year of study and Norway where some funding has been based on the number of credits obtained (Salmi, 2009).

Besides being used in funding formula, performance information can be introduced into budget process in some other ways as well, namely in contracts. Mission-based or contract funding is based on a consensus between the state and individual university on future policy and institutional goals. Funding for the achievement of these goals is normally laid down in a contract-like agreement made up of both qualitative and quantitative criteria and valid for a given number of years. The ultimate achievement of these goals may, or may not, be measured at the end of the agreement period. In the former case, a budget adjustment may be made (Orr et al., 2007).

In France, contractual policy started in 1989. It was first limited to research but in 1989 all activities became in the realm of contractual policy. The aim of this policy is to give new autonomy to universities and to allow the State to exercise fully its responsibility to boost and co-ordinate activity in higher education. Each higher educational institution draws a four-year plan which covers all activities (teaching, research, management, etc.) regarding all actors (students, staff, public authorities, and external parties). This plan is negotiated with the appropriate department of the Ministry and a four-year contract is signed (EU-RA, 2004). Nowadays contracts are an important funding mechanism for determining the amount of the public operational grant (together with a formula) in ten European countries (Austria, Germany, Estonia, Finland, France, Greece, Lichtenstein, Luxemburg, Sweden, Turkey), compared to just a few in 1995 (Jongbloed, 2010).

Although performance-based funding has its positive implications for university's performance and accountability, there can also be challenges and side effects in use of performance indicators. It has been noted that the choice of output indicators in performance-based funding approaches can often be a controversial issue. Every output indicator may have its shortcomings. Therefore, instead of a single, one-dimensional measure, a number of different indicators have to be used for approximating the many dimensions of the output in terms of quantity as well as quality. One of the solutions has been to use a number of input indicators next to output indicators when deciding on the budgets to be allocated (Jongbloed & Vossensteyn, 2001). Another group of challenges relates to the effects of

performance funding on institutional behaviour. Taylor and Taylor (2003, p. 73) argue that one problem is that value is assigned to what is measurable and that what has been assigned value is reviewed for accountability and funding. Consequently, a heavy dependence on quantitative indicators may result in higher education institutions overlooking activities or qualities which are hard to measure and intangible – but of equal or greater importance. Performance-based funding may lead to academics operating in a way that would not be optimal, or even reduce quality of teaching and research (Frolich, 2008). That is why quality assurance mechanisms should be in place next to the funding mechanisms.

The above discussion shows that there has been a growing concern on the part of governments with quality, efficiency and accountability of public higher education institutions. In the past 30 years there can be observed a tendency pointing towards more performance-based funding mechanisms. However, the extent to which such moves towards performance contracts and performance-based funding have taken place varies considerably across countries. The next section will be dedicated to changes in the funding of research.

1.3.2. Changes in funding mechanisms for university-based research

As mentioned in Section 1.3.1, since the 1980s the rationale for university funding has been increasingly influenced by the pressures of accountability and cost efficiency. As documented in the literature on university funding, the same pressures apply to university-based research funding as well (Geuna, 2001; Jongbloed & Vossensteyn, 2001; Kaiser et al., 2002). For more than three decades, there has been a growing concern "about the increasing cost of funding university-based research…and the need to obtain "value for money" for public expenditure on higher education" (Nowotny et al., 2003; Taylor, 1987). In response, many governments have implemented mechanisms that attempt to relate funding to performance (Geuna & Martin, 2003). In this section we will present the changes in funding mechanisms of university-based research triggered by the above mentioned pressures.

Public funding of university research can take place through an operational grant and through competitive public research grants (Jongbloed et al., 2010). The operational funds for research can either be part of a block grant for teaching and research or consist of a separate block grant for research. The competitive public research grants are usually allocated by research councils, national academies or other intermediary bodies and take the form of project funds provided to researchers or research teams.

Under the operational grant institutions receive a block grant that is not differentiated by project. A block grant calculated on the basis of past expenditure levels (incremental funding) has prevailed until the early 1980s (Geuna, 2001). This funding mechanism provides institutions or faculties with freedom in setting their own priorities for the expenditure of these funds, but it arguably removes government from setting the national research agenda (Salmi & Hauptman, 2006).

The amount of a block grant can also be based on a formula that takes into account the number of researchers, for example. Sometimes, the eligibility for the block grant is based on institutional demonstrated capacity. In this case, the amount of public research funding is based on a periodic peer-reviewed assessment of collective faculty capacity to conduct research in an innovative fashion (Salmi & Hauptman, 2006). The archetype of competitively based core funding is the United Kingdom's Research Assessment Exercise (RAE), which is a periodic national exercise that assesses quality of research and is used to inform the distribution of public funds for research (Geuna & Martin, 2003)[7]. More often research core funding is allocated on the basis of funding formula with performance-based criteria: number of research degrees awarded (e.g. Australia, New Zealand, Norway, the Netherlands), scientific publications (e.g. Australia, Estonia, Finland), volume of external research income, level of qualifications of academic staff (Geuna & Martin, 2003).

[7] Research Assessment Exercise will be replaced by Research Excellence Framework in 2014 (www.hefce.ac.uk/Research/ref).

Another way of allocating public funds is through specific projects. Under this approach academic staff is funded for specific projects based on peer review of proposals. Several advantages can be attributed to this research funding mechanism, namely that the peer reviewed projects have the potential of combining relevance and quality (Salmi & Hauptman, 2006).

In the past 30 years the tendency has been an increasing reliance upon formula and project-based, or contractual, funding. Analysing higher education research and development funding between 1981 and 1996, Geuna (2001) found that the share of general university funds (combined funding of teaching and research) has substantially declined, while the share of direct government funds (usually funnelled through research councils or ministries) has increased. A later study conducted by CHEPS (Centre for Higher Education Policy Studies, Twente), concluded that between 1995 and 2008 the average share of competitive research council funding in European universities has increased from 44% to 47%. This rather modest average increase represents a variety of developments; in particular, in 11 out of 30 countries a rise in the share of competitive funding was quite substantial (Jongbloed et al., 2010).

Competitive funding is based on some kind of evaluation or assessment, which can take ex-ante and ex-post forms (Massy, 1996). Ex-ante evaluation is conducted prior to the execution of a research project to assess its potential importance and scientific contribution. Ex-post evaluation takes place after the project has been completed to assess its output or impact. The results of evaluation are increasingly used as a tool for funding allocations.

Evaluations have tended to focus on four main areas: volume of research output, quality, impact (on other researchers or on the advancement of knowledge), and utility in terms of generating technological, economic or social benefits. To measure these different aspects, various indicators have been developed. There is a large body of literature analysing the advantages and drawbacks of using indicators of research performance but little consensus as to which indicator (or

set of indicators) is best suited to measuring each of these four aspects of performance (Geuna, 1999).

There are various approaches to research funding that can be represented as a continuum from pure performance-based ex-post evaluation on one side to allocation of resources for research as a part of a general institutional grant based solely on a number of researchers on the other. Nonetheless, across Europe, several common trends can be observed (Conraths & Smidt, 2005):

- the further introduction of competitive-grant funding through agencies and ministries (often accompanied by a reduction of the overall institutional block funding);
- the steering of public research agendas through financial support to specific (excellence) programmes;
- the increasing levels of autonomy for higher education institutions, which has been accompanied by pressure from governments to diversify income sources, such as attempting to match public funding streams with funds from business, other private not-for-profit, and international sources.

The reason for the more performance-based approach towards university research funding is that it is believed to enhance quality by rewarding successful research and to promote efficiency by motivating researchers to complete their research and disseminate it in scientific journals and shift resources from the less successful to the more successful units. The performance-based funding system also contributes to public accountability.

However, this approach also raises some issues that have to be considered in relation to long-term development of research and innovation. Competitive funding may promote short-term research in cases where evaluation mechanisms are based on quantifiable and immediate outputs. As a result, researchers may be reluctant to engage in long-term projects that do not produce immediate results. Short-term grants may also mean that researchers should spend a large amount

of time preparing grant proposals (OECD, 2008a). Furthermore, project-based funding may tilt research focus to "safer" research, thus threatening it to become "homogenised" and reduce "scientific novelty" (Geuna, 2001; Geuna & Martin, 2003).

1.3.3. Cost-sharing

The supplementation of higher educational revenues by non-government sources has been one of the major recommendations from the World Bank and most other development experts (Johnstone et al., 1998; World Bank, 1994; Ziderman & Albrecht, 1995). Most recently, the OECD report "Tertiary Education for the Knowledge Society" (2008b) reemphasises these recommendations. It recognises higher education benefits to society as a whole in the form of economic growth, social cohesion and citizenship values and the necessity of its public funding, but:

> …it does not follow that the public purse should bear a top-heavy share of the costs. In light of the evidence of the private benefits of a tertiary degree, graduates could bear some of the cost of the services offered by tertiary institutions. (…) Cost-sharing allows systems to continue to expand with no apparent sacrifice of instructional quality, and makes institutions more responsive to student needs (OECD, 2008b, p. 8).

The European Commission has also pointed out that the funding gaps between Europe and the United States and Japan is a serious obstacle to meeting the Lisbon goals, and has particularly emphasised the importance of fiscal rules enabling the increase of private investments in both higher education and research. The Commission also pointed to the need for cost-sharing and suggests that member states critically examine their current mixes of student fees and support schemes in the light of their actual efficiency and equity outcomes (Van Vught, 2009).

This "push" towards privatisation[8] of higher education is motivated by several forces. First, it is based on the view that those who benefit should pay or share the

[8] Privatisation in higher education refers to a process or tendency of colleges and universities, both public and private, taking on characteristics of, or operational norms associated with, private enterprise (Johnstone,

cost of the “product”. Increasingly students are seen as consumers as opposed to participants in a learning process or colleagues. This view is shared not only by policy-makers but by the general public as well. A 2003 survey by the Chronicle of Higher Education showed that the public's two highest goals for higher education were very much in the personal benefit column: preparing undergraduates for a career, and providing education to adults so that they can get a better job. Societal good roles ranked much less highly with the respondents. Only a slight majority favoured "discover more about the world through research", and only a bit over 1/3 emphasised a university role in creating jobs and economic development (Hebel, 2003). Second, privatisation is also motivated by the assumption that it increases efficiency. It is believed that acting more like private enterprises, public institutions will produce better results given the limited resources.

The concept of cost-sharing has first been developed by Bruce Johnstone, starting with his work in 1986 “Sharing the Costs of Higher Education” where he compared higher education finance and student aid in the UK, France, Germany, Sweden and the U.S. The perspective of cost sharing posits that the costs for higher education are borne by four parties: governments (or taxpayers), parents, students, and philanthropists. The policy of cost-sharing is a deliberate shift in the bearing of these costs from a substantial reliance on government, or the general taxpayer, to being shared as well by parents and students (Johnstone, 1986).

The rationales for this shift are largely the same that we have described earlier in the chapter (Section 1.3.1, 1.3.2). First, there exists the sheer need for other than government revenue. The need begins with the dramatic increase in both the public and private demand for higher education, recognised as a major engine of national economic development and provider of individual opportunity and prosperity. Second, is the high – and likely to be increasing – per student costs on top of the increasing number of students. The third rationale is the decline in

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2002). Williams (1996) examined six forms of privatisation of higher education, which are: universities run as completely commercial organisations; universities as non-profit trusts; public universities receiving a significant portion of income from tuition; public universities receiving a significant portion of income from other private sources; public universities contracting services to private agencies; and public universities receiving and allocating resources based on market criteria.

available public revenue due both to the increased difficulty for governments to collect taxes (tax evasion and difficulties in income reporting in ex Socialist bloc countries; globalisation reasons and easy to avoid taxes in developed economies) and competition for public resources from other public services due to changes in demographics.

> Thus, tuition and other fees from students and families have the potential for substantially augmenting the increasingly scarce public revenues. In many countries contributions from students and their families is so far the only private source that complements public support for higher education. It contributes to higher education institutions budgets to a greater degree in Mexico, Poland, New Zealand and Japan, and to a lesser degree in Denmark, Norway, Finland, Turkey and Portugal (less than 10%) (OECD, 2006a).

Research by OECD has also suggested that there is evidence of substantial private benefits from a higher education degree (Jongbloed et al., 2010, p. 33). These high private returns in the form of better employment and income opportunities suggest that greater contributions by individuals and other private entities to the costs of education may be justified so long as governments can ensure accessibility of funding for students irrespective of their economic background. Additionally, the earnings difference between a university graduate and a secondary school graduate could be considered as “private return” to education. On average, a CHEPS study of 33 European higher education systems showed that there is a 61% earnings advantage of university graduates. They conclude that,

> …thus, higher education in Europe continues to be a profitable investment opportunity, both privately and socially. This evidence is often used to propose that increased resources for higher education institutions should come from private sources, such as increased student fees. Such a statement is reinforced by the regressive incidence of public financing of higher education systems: in higher education, most students are from medium to high socio-economic backgrounds implying that a system of zero or low fees would disproportionally favour the families that are well to do.

The introduction or the increase of tuition fees has been one of the most widely debated issues in higher education funding (Teixeira et al., 2006). In most countries tuition fees are charged up front. This policy is based on the assumption that parents should contribute to their children's education and that they should pay according to their ability. In this case, the proportion of tuition depends on the family income. Quite a few countries practice dual-track tuition fees policy according to which some (usually most able) students are eligible for publicly subsidised, "free" places at a higher education institution while other students (who have scored lower on the examination, for example) have to pay almost full cost of instruction. Dual-track tuition policy also takes place when universities charge tuition fees for continuing education or other professional courses. Deferred tuition fees may come in the form of income-contingent loans like in Australia or the UK, for example, or graduate tax, which is a variant of the above where the student becomes obligated to income surtax. While no country has introduced a formal graduate tax, some loan schemes have its elements (Scotland, for example) (Johnstone, 2006, p. 64).

Only some countries in Europe can still afford almost fully tax-supported systems of higher education. However, there is a long tradition in the Scandinavian countries that the student bears all or almost all costs for food, lodging and other costs of student living through partially subsidised student loans. This makes a question of student contribution in these countries at least part of the discussion on cost-sharing (Johnstone & Marcucci, 2010).

An overview of tuition policies is presented in Table 2.

Table 2 - Tuition fees policies in some OECD countries (for nationals)[9]

Up-front tuition fees	No tuition fees	Dual-track tuition fees	Deferred tuition fees
Austria	Denmark	Australia	Australia
Belgium	Finland	Hungary	Scotland
Canada	France	Poland	New Zealand
Germany	Greece	Romania	England
Italy	Ireland		Wales
Netherlands	Luxembourg		
Portugal	Malta		
Spain	Norway		
Turkey	Sweden		
United States			

Source: Johnstone (2006).

The amount of tuition fees varies across the countries. Average fees in Belgium, Spain and Switzerland range around €750; in Portugal and Italy they are about €1000, while in the Netherlands the tuition fees are much higher – around €1800. In such countries as England, Australia, New Zealand, Canada and the United States, higher education institutions charge substantial tuition fees. In some of the countries tuition fees or the maximum level for them are set by the government, while in others higher education institution set the amount themselves.

The introduction of tuition fees is aimed to respond to such policy objectives as efficiency, quality and fairness. It is believed that sharing costs with service users increases the efficiency of institutions, making them more responsive to customers' needs. On the other hand, there is an argument of "token user charge" which states that when a fee is collected rational behaviour on the part of the consumers increases (Eicher & Chevaillier, 1992). There is also empirical evidence that the children from middle and high income families are overrepresented in higher education (Vossensteyn, 2005). Thus, public subsidies

[9] Several countries introduced tuition fees only for foreign students, e.g. Cyprus, the Czech Republic and Malta; Denmark and Ireland for non-EU citizens,

to higher education tend to have a regressive effect by making population in general pay for the education of children from privileged socio-economic backgrounds (Barr, 2004). From this point of view it would be fair that those who benefit and who have financial possibilities contribute to the cost of studies.

Changes in the proportion of funding sources raise concerns about equity. The challenge for public policy is to design efficient and effective student aid programmes that can offset any discouraging impact that tuition fees have on the participation of low-income students[10].

1.4. Summary of the Chapter

This chapter looked at the issues of higher education funding. It started with contextual factors that have been influencing higher education for the past several decades. We tried to show how expanded higher education systems, together with other factors like globalisation, financial austerity and demographic trends, put high pressures on public spending. We proceeded with some economic as well as non-economic rationales for public and private support for higher education and then considered funding mechanisms characteristic of both sources in more detail. The analysis of international trends in higher education funding has demonstrated a shift for more rationalisation in the use of public resources which is manifested through the introduction of output-based funding arrangements and competitive funds as well as the cost-sharing policies.

Funding is more than merely a mechanism to allocate resources to universities. It is part of the set of tools and other governance instruments that enforce common goals set for higher education, set incentives for certain behaviour, and attempt to maximise the desired output with limited resources (Jongbloed, 2009).

Bearing this in mind, the next chapter will be dedicated to the concept of governance. Our task will be to understand the concept at the macro (system) and micro (institutional) level, to see how the contextual factors described in this

[10] On student loans see for example Ziderman and Albrecht (1995); Salmi (2001); Salmi and Hauptman (2006); Woodhall (1992, 2002); Vossensteyn (2004); Barr and Crawford (2005).

chapter have changed governance arrangements and how higher education institutions respond to these changes.

CHAPTER 2 - HIGHER EDUCATION GOVERNANCE AND MANAGEMENT

In Chapter 1 we mentioned that funding and governance changes are intertwined and are difficult to separate. Funding is one of the major tools of government steering. At the same time changes in funding sources influence the way public institutions are governed and managed internally. Therefore, governance and funding are two mutually adjusting (or adjusted) systems that constantly interact with each other. One of the major reasons to reassess governance of public institutions was the economic recessions of 1980s and 1990s that led to economic restructuring and reduction in public expenditure (Woodhall, 1994). Many governance reforms have been financially driven and have been looking for efficiency gains (Pollitt & Bouckaert, 2000).

Another universal pressure is the massification of higher education and its diversified character which is manifested both through diversified student population and institutional variety. It has been noted by various observers that a mass higher education system cannot be governed the same way as an elite system (Amaral et al., 2002). The university “enterprise” has grown much in volume. But it is not only the size that matters. Higher education is confronted with new demands from the society at large. It is expected to be relevant, responsive, adaptive, and proactive, in short, it has to satisfy the needs of its multiple constituents and do it with excellence and with fewer resources. It has been recognised that such complexity requires some different approaches to how universities used to be run and countries throughout Europe have responded in a variety of ways to the need to rethink and redesign governance structures of higher education.

Other developments such as globalisation and Europeanisation have also contributed to rethinking traditional modes of governance. The appearance of new actors at the supra-national level, such as the European Union, the Organisation for Economic Cooperation and Development, and the World Trade Organisation make possible the dissemination of best practices and policy advice to member countries. These organisations also endorse more market-like approaches towards higher education regulation (van der Wende, 2009a).

The above mentioned trends have created a paradoxical relationship between governments and higher education institutions. On the one hand higher education institutions are given greater autonomy; on the other hand, government control is as strong as ever. Universities are held accountable for their behaviour in new ways: they must show that they are responding to the needs of society, they must demonstrate that they use government resources efficiently, and they must maintain standards of excellence in teaching and research. Especially in Europe, increased institutional autonomy and accountability initiated changes in methods and tools of management (Sporn, 2003b). Our focus is on changes in university governance and management triggered by a changed funding environment, in particular by the need to diversify higher education institutions' income.

The purpose of this chapter is to understand both external and internal aspects of governance that potentially influence the ability of higher education institutions to generate additional revenue. Changes in the relationship between the state and higher education institutions have received considerable attention among academic writers. These changes include new mechanisms of state regulation and introduction of market-like mechanisms (Bok, 2003; Dill, 2003; Teixeira et al., 2004), rethinking higher education's role in society, the nature and status of academic work (Deem, 2004; Rhoades, 1998; Slaughter & Leslie, 1997) and the ways universities are funded and supported (Herbst, 2007; Teixeira et al., 2006; Williams, 1999). This chapter is structured as follows. Before trying to understand *how* universities have responded to changes in funding environment we introduce some theoretical considerations about universities as organisations, higher education governance and governance models. We also discuss why and what kinds of changes have taken place. By studying the shifts in external and internal governance we would like to understand the institutional dynamics that took place and what kind of environment has been created for universities.

2.1. Universities as Organisations

2.1.1. Unique characteristics of universities

It has been noted by various authors that universities are complex organisations that possess some unique characteristics due to their specific objectives: in these institutions “knowledge is discovered, conserved, refined, transmitted and applied” (Clark, 1983, p. 12). One of the characteristics of higher education institutions concerns the authority of the academic professional experts. Many decisions regarding the academic activities of research and teaching can be taken only by these experts. Traditionally, both authority and loyalty are derived from and owed to the profession – typically expressed in terms of disciplines rather than institutions. It is also from this source that claims for professional self-regulation and control by peers are derived as opposed to the control by “managers” (Bargh et al., 1996).

Organisational structures have reflected the claims of professional control by joining discipline-based departments into faculties and thus forming the building blocks of higher education institutions. Reflecting this arrangement, higher education institutions were called “loosely-coupled systems” (Weick, 1976). This term implies several characteristics: a relative lack of coordination; a relative absence of regulations; little linkage between the concerns of senior staff as managers and those involved in the processes of teaching and research; a lack of congruence between structure and activity; differences in methods, aims and even missions between departments; little lateral interdependence among departments; infrequent inspection; and the “invisibility” of much that happens (McNay, 1995). Other institutions that have been operated as associations of autonomous individual professionals who govern, within a certain mandate, collectively through collegiate bodies are for example, law and accounting firms and hospitals.

According to Clark (1983) the organisational fragmentation characteristic of higher education institutions explains their remarkable adaptability. Clark argues that “it is the peculiar internal constitution of universities that allows them...to bend and adapt themselves to a whole variety of circumstances and environments, thus

producing diversity among universities ... and, at the same time, to maintain an appearance of similarity that allows us to recognise them in all the guises which they take" (Clark, 1983, pp. 186-187). Clark's observation is supported by the fact that among 66 organisations that existed both in 1530 and 1980, there were 62 universities, two churches and two parliaments (Kerr, 1982).

As a result of loose-coupling, the decision-making power is spread over a large number of units and actors. Universities are compared to federal systems, rather than centralised ones: semi-autonomous departments and schools, chairs and faculties act like small sovereign states as they pursue distinctive self-interests and stand over against the authority of the whole (Clark, 1983, pp. 266-267).

The unique characteristics of higher education institutions can be summarised in the following way:

- Authority based on professional expertise;
- Limited administrative authority;
- Loosely coupled organisational structure;
- Diffusion of decision-making.

As noticed by Van Vught (1994, p. 339), these characteristics "confront government with some specific problems when it wants to develop and implement a strategy directed towards influencing higher education institutions".

2.1.2. Organisational models

Based on the above mentioned characteristics a collegial or professional model of organisation has developed. The collegial model of organisation centres on notions of academic freedom; autonomy and self-governance; and "cohesions based on a limited hierarchy of seniority and expertise, a common heritage and shared ideals" (Middlehurst, 1995). Characteristics that are generally associated with professionals are: intellectual skills which are usually demonstrated through higher education qualifications and professional training, a license to practice on

the basis of specialist knowledge and skills; services offered to clients; apprenticeship and socialisation into the norms and procedures of a professional group; adherence to the standards and codes of practice established by a professional association; and autonomy and discretion in directing one's own work (Middlehurst, 1995, p. 81). In Mintzberg's classification, universities can be described as "professional bureaucracies" (Mintzberg, 1979). In this model there is reliance on highly skilled professionals in the operating core to perform the complex day-to-day work. This means the "operators" tend to work largely independently of one another but closely with the clients being served. However, the work is also stable, leading to standard products and, as Mintzberg puts it, the "pigeonholing process". In the university context a repertoire of standard programmes are designed in response to the perceived needs of students who are placed on a particular course (pigeonholed) and are supplied with academic inputs.

A different from the collegial model is a bureaucratic model. In this model the academic/professional authority is substituted by hierarchical authority relations. Central features of a bureaucratic model include: a hierarchical structure of formal chains of command; carefully defined roles and responsibilities; systematic rules and procedures based on clear policies and agreed goals (Middlehurst, 1995, p. 81).

Research on academic culture and professional versus administrative values shows, that a conflict between the collegial and bureaucratic models of organisation is inherent to universities (Becher & Kogan, 1992; Clark, 1983; Sporn, 2003b). Administration assumes a power of hierarchy while professionals can only work effectively if free from pressures and constraints (Sporn, 2003b, p. 28).

However, it can be argued that the internal organisational world of universities is inadequately captured in either of the models. The potential for conflict generated by the differences between disciplines and other groups within universities and, not least, the competition for resources both internally and externally engaged in by these groups is the dominant characteristic of universities as organisations. A

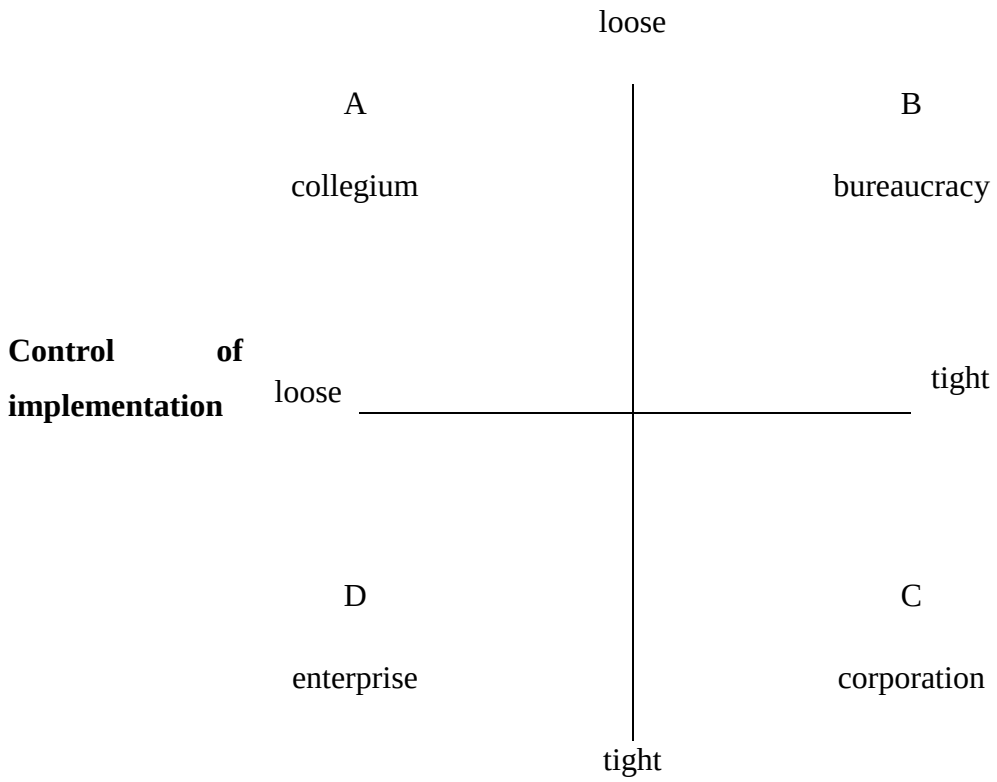
political perspective highlights clashes between various interest groups which compete for power and control over decision-making. In this interpretation of organisational dynamics university is a highly politicised institution. A “political university” is characterised by complex and often deeply set subtexts of informal relationships and deal-making. The outcome is less stable or regulated than the bureaucratic image, less amenable to control by hierarchical structures and certainly less governed by procedural norms than political bargaining and compromise (Bargh et al., 1996, pp. 32-33).

Two other perspectives, cybernetic and entrepreneurial, consider the university as a dynamic system which comprises a number of interacting elements. In the cybernetic image the university is projected as a flexible, adaptable and highly resilient institution capable of “thinking” and reacting to changing environments. In this image the focus is on the internal systems of the university, ensuring that the institution “learns” from the external environment and directs that learning in order to make appropriate adjustments according to agreed priorities (Bargh et al., 1996). Thus, cybernetic systems can be described as self-regulating. However, self-regulation works best in conditions of relative stability. The problem arises when drastic change is needed (Middlehurst, 1993, p. 64). Change initiated through directive institutional leadership may not render the desired outcome since the connections between parts of the organisation are loosely coupled. Instead, the leadership needs to work through the communication channels and feedback loops within the system.

Central to the idea of the entrepreneurial university is its proactive and opportunistic attitude. The university exploits its strengths in order to achieve maximum political and financial gains in the marketplace, relying on the initiative and risk-taking of individuals and groups in different parts of the institution and a clear managerial framework from the top.

The typology of universities as organisations offered by McNay (1995) (Figure 7) uses similar labels - collegium, bureaucracy, corporation and enterprise – but adds two dimensions: policy definition and control of implementation.

Figure 7 - Models of universities as organisations



Source: McNay (1995).

McNay applies key words to better describe each model. For the collegium one the keyword is “freedom”. This freedom is related in the first place to freedom of teaching and research. If these are university’s basic activities, then decisions will be made mainly at the departmental level “within a frame of reference set by peer scholars and international community”. Thus, freedom here refers also to freedom from bureaucratic rule.

In the bureaucracy, regulation becomes important. It might be a good model for maintenance in stability, but not for rapid change. McNay points out the inflexibility of this model. His corporation model is similar to the above mentioned political model and has “power” as a key word. This model is suited for crisis, not continuity. In this model the executive asserts authority.

In the enterprise the key word is client. “That carries with it connotations not only of the market, but of professionalism where the knowledge and skills of experts, and the needs and wishes of those seeking their services, come together. In organisational terms it means that key decisions should be located close to the client, within a well-defined general policy framework, and that the good of the client should be the dominant criterion for decision-making” (McNay, 1995, p. 107). The author mentions that clients can be internal and external, but he does not develop the idea that their interests might be different or even conflicting. He mentions though that all four models co-exist in universities.

These organisational models, like all theoretical constructs, present somewhat ideal types, or extreme cases. It has to be acknowledged that several organisational models can function within the same institution. For example, the collegial model can be applied to decision-making within the departments and faculties, while the bureaucratic model describes the relationships between university administrators and academics. Organisational models are useful images that can help us identify the complexity of day-to-day relations within the institution but they can only take us so far. It is therefore necessary to look for the elements of all perspectives and their interactions to be able to construct a comprehensive view of governance.

2.2. University Governance

2.2.1. Definitions and concepts

The governance of higher education institutions and particularly of research universities is probably the most important as well as the most complex issue in higher education policy and research. In the increasingly complex and turbulent environments in which higher education institutions operate, a single definition of higher education governance cannot prevail (Reed et al., 2002). Therefore, several definitions are given below.

Marginson and Considine (2000, p. 7) give quite an exhaustive definition of university governance:

> Governance is concerned with the determination of values inside universities, their systems of decision making and resource allocation, their mission and purposes, the patterns of authority and hierarchy, and the relationship of universities as institutions to the different academic worlds within and the worlds of government, business and community without.

Governance has been also conceptualised as “the notion of the relationship or dynamic interaction of bodies and groups operating at different levels of higher education system, be it the interaction between the academic guild and institutional management or institutional management and ministerial authority” (Reed et al., 2002). Another definition from the corporate world was given by Tricker (1984):

> The governance role is not concerned with running the business, per se, but with giving overall direction to the enterprise, with overseeing and controlling the executive actions of management and with satisfying legitimate expectation for accountability and regulations by interests beyond corporate boundaries. If management is about running business, governance is about seeing that is run properly.

Though conceptually governance and management are two distinct notions, in practice they are used as related concepts. The same may be said about the terms leadership and administration in relation to governance and management and it seems to be worthwhile to give some definitions of the former as well. Administration can be defined as the process of interpreting and carrying out the goals and tasks of the organisation in line with established policies and procedures. Management, however, is much more than administration, since it involves leadership and a substantial measure of discretion in decision making and policy implementation (Meek & Wood, 1997). The importance of management in the knowledge society is stressed by Drucker (1993) who states that it is a generic function of all organisations irrespective of their mission. The author

emphasises the fact that management is needed most in not-for-profit non-government organisations and in government agencies because they lack the "discipline of the "bottom line"[11] under which business stands". He also defines the modern manager as the one "responsible for the application and performance of knowledge". Academic leadership, in turn, while related to management is often provided by staff holding neither formal management nor administrative positions. Leadership can be regarded as an individual capacity to effectively influence and motivate others with respect to the achievement of organisational goals, strategies and objectives (Meek, 2003).

These interpretations lead to a conclusion that governance is about the frameworks in which universities and colleges manage themselves and about the processes and structures used to achieve the intended outcomes. This implies that governance is a "relational concept that can be considered to incorporate leadership, management and administration" (Reed et al., 2002, p. xxvii).

Governance has been conceptualised in terms of authority. Higher education organisations combine positioned-based authority of bureaucracy with the expert, knowledge-based authority of the profession, or, in other words, vertical chain of command and the informal, flat forms of professional organisation (Clark & Neave, 1992). Clark (1983, pp. 205-206) focuses on three main authority levels: the under structure (basic academic or disciplinary units), the middle or enterprise structure (individual organisations in their entirety), and the superstructure (the vast array of government and other system regulatory mechanisms that relate organisations to one another). Besides, Clark (1983) identifies different forms of authority or "legitimate rule" at each level. At the under structure level he especially distinguishes personal, rooted in early master-apprentice relationships and based in expertise, and collegial authority – democratic rule by peers. The central type on this level is, however, the guild authority. "In guild like arrangements, the individual master has a personal domain within which he controls subordinates; the masters then come together as a body of equals to exercise control over a

[11] The bottom line in business is the incentive to make profits.

large territory of work". In other words, guild authority is a blending of autocracy and collegiality. At the enterprise level Clark distinguishes between trustee and bureaucratic authority. Trusteeship is described by Clark as a form of dispersed public control. Trustees can represent a general public interest in a public institution, or a specific constituency and supporting group in a private institution, or some combination of the two. In non-trustee-based systems, public interest is manifested through elected representatives in the legislature. Bureaucracy for Clark is very similar to managerialism with its top-down control and impersonality. He identifies bureaucratic rule at different levels. For example, it can be found at system level again.

Other forms of authority at system level are political authority and system wide academic oligarchy. The legitimacy of political rule is based on the power of purse and its role as a guardian of public interest. According to Clark, in a comparative perspective this form is subject to most variations. At the system level academic oligarchy exercises authority through its access to central councils and offices, advising committees, peer review boards, etc. Clark´s authority forms present building blocks of which he constructs his triangle of coordination, which will be discussed later (Section 2.2.2).

Another variable that is present in governance models is university autonomy. In fact, university autonomy embraces two very different constructs to the relationship between university, government and society (Neave, 2009). There is "academic autonomy" and "institutional autonomy". The first relates essentially to the freedom of teaching and learning and the freedom of those engaged in these activities. This is sometimes termed "personal" or "positional" autonomy. "Academic" autonomy is distinguished from "institutional" autonomy. The ingredients of institutional autonomy according to Ashby (1966) are:

- Freedom to select staff and students and to determine the conditions under which they remain in the university;
- Freedom to determine curriculum content and degree standards;

- Freedom to allocate funds across different categories of expenditures.

Similarly, Berdahl (1990) draws a distinction between the “academic freedom” and the organisational autonomy of universities. Concerning organisational autonomy he proposes to distinguish between two dimensions, a *substantive autonomy* and a *procedural autonomy*. Substantive matters of universities are referring to the right and authority to decide on goals and programmes or, in other words, on the question what to do in order to fulfil the different functions of universities. Procedural autonomy relates to the question how things are done within the university, thus specifying the means, the organisation, and the distribution of resources and the instruments of university action. For our study institutional, or organisational, autonomy is more relevant. The degree to which institution is free to make its own decisions is an important indicator of its ability to diversify the funding sources (EUA, 2008).

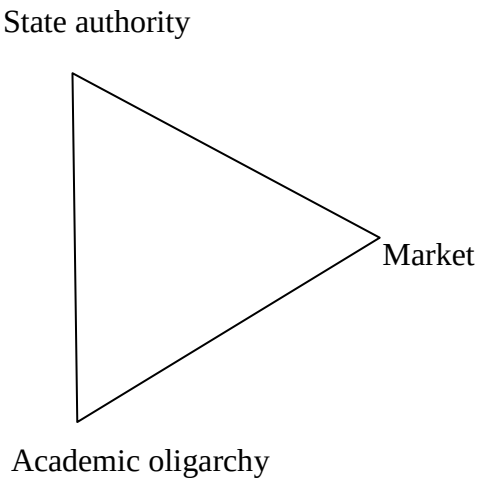
Rather than viewing autonomy as an absolute, one can regard it as a relational issue involving the balance of power between institutions and government, on the one hand, and between management and the academic profession within institutions, on the other (Meek, 2003, p. 7).

2.2.2. Models of governance systems

There have been various attempts to develop useful models of governance systems in order to understand the complexity of national systems as well as to be able to draw international comparisons. The most cited model is Clark’s triangle of higher education coordination (Figure 8) (Clark, 1983). According to this model national higher education systems can be described depending on one of the three predominant modes of coordination: state, market and academic oligarchy. For a typical state-regulated system Clark, at the time of writing, gives the example of the (former) USSR, where state-planning and control won over academic or market rule; Italy as an example of an extreme on the academic oligarchy axis; and the United States, where the state plays only a minor role and universities have to find multiple financial resources through competition and bidding as an

example of the market coordination (Braun & Merrien, 1999, p. 16). These are, of course, the ideal types of coordination and each national system can combine several coordination mechanisms. However, while not giving the nuances of interplay between different types of higher education coordination in a particular country, this model presents an abstract construct that helps to map the tendencies nationally or comparatively.

Figure 8 - Clark's triangle of coordination



In relation to this model, it can be argued that pure forms of coordination by market or academic oligarchy do not exist. Rather than being viewed as a static model, the points of Clark's triangle should be regarded as the directions of change. The State is always present in what concerns higher education coordination and cannot be put in opposition to the other two forms as a pure alternative. Dill (1998) points out that the effectiveness of government provision of higher education is a function of a state policy, but so too, he argues, is the effective functioning of market and professional control. That is, all three forms of coordination – state, market, and academic oligarchy – can be seen as alternative policy instruments of the State. Another way of looking at the Clark's triangle is as a representation of different "ideas" of higher education. "There are three legitimate claimants to legitimacy in higher education – three possible principles. One is the collective will of the society; the second is the particular wishes of individual consumers; the third is authority given by knowledge and expertise" (Williams, 1995). The changes

in governance that we will describe further in this chapter are affected by the interplay of these ideas and competing forces.

Following the rationale that state policy determines the distribution of power between the three forces identified by Clark, van Vught (1989) offered a different governance typology which has the state as a main actor in higher education coordination. He suggests differentiating between a *state control* model and a *state supervising* model. The *state control* model is characterised by a strong authority of state bureaucracy on the one hand and a relatively strong position of the academic oligarchy within universities on the other hand. State regulates “the access conditions, the curriculum, the degree requirements, the examination systems, the appointment and remuneration of academic staff, etc. (Van Vught, 1994, p. 331), while the academic community maintains a considerable authority in the regulation of internal university affairs”. The result of the combination of the authority of state bureaucracy and faculty guilds is a power structure which expresses the interests of two groups: government officials and senior professors. The power distribution of this model is characterised by a strong top (the state), a weak middle level (the institutional administration) and a strong bottom (the senior chair holders) (Clark, 1983, pp. 126-127). This governance model could be mostly found in continental Europe and is based on the assumption that university is a state institution and as such is viewed as a key social and cultural instrument for the development of the modern nation state, and the state assumes a central role in regulating and controlling these institutions (Amaral, Jones, et al., 2002, p. 280).

The *state supervising* model is characterised by a weaker authority of state bureaucracy. “The state sees it only as a task to supervise the higher education system, in terms of assuring academic quality and maintaining a certain level of accountability” (Van Vught, 1994, p. 333). This model can be observed in the U.S. and in the traditional British higher education system. At the institutional level this model is characterised by a combination of the authority of faculty guild and institutional trusteeship and administration, with a stronger influence of the latter in the U.S. system. Universities are established as charted corporations and are responsible for their own management.

The above presented models show the power and authority relations between the actors involved in higher education coordination. These models are important for our understanding of the changes in these relationships which will be presented in Section 2.4.

2.3. Changes in Public Sector Governance

Before turning to changes in higher education governance it is useful to give a brief overview of the changes in public sector governance in general, as the focus of this study is on public higher education which makes part of the public sector.

After the Second World War, governments took over the role of correcting market failures in such areas as social security, education, health care, housing, and infrastructure, mainly to prevent poverty and unemployment in the post-war period. However, several decades later, the idea that national governments are the major actors in public policy has been put to doubt (Peters & Pierre, 1998). The forces behind this "disillusion" with the publicly provided services are multiple, for instance: shifts in the economy, new management ideas and political pressures (Pollitt and Bouckaert, 2000). Without going further into the reasons for change, as they are out of scope of this study, we will present the changes themselves. These changes were part of general socio-political trends that have fuelled, and also constituted, the transformation of the welfare state. According to Bargh et al. (1996, p. 156), these trends include: the undermining of welfare values; the revival of older collective notions, such as community or civil society, *contra* the welfare state; the downgrading of social justice and upgrading of economic competitiveness among the state's competing purposes; a retreat from "planning", or public choices made in the political arena, and enthusiasm for "markets" suitably policed; the rise of the new accountability based on business-like audit rather than democratic responsibility; the erosion of the notion of the state as the guardian of the "public interest", and its replacement by the contractual state, purchasing services on behalf of tax payers, the growing fuzziness of the once sharp demarcation between public and private sectors.

The changes in the public sector have been strongly influenced by the set of ideas characteristic of the New Public Management (NPM) theory. It is not a clear cut theory and is usually referred to as a combination of processes and values that developed in the 1980s as a distinctively different approach to the coordination of publicly provided services (Clarke et al., 2000). NPM is contrasted with forms of bureaucratic administration in public service organisations and was conceived as a means to improve efficiency and responsiveness of public services. It initiated in the United Kingdom and then spread to the United States, Australia and especially New Zealand, and then further on to Scandinavia and Continental Europe (Lane, 2000).

Features typically ascribed to NPM include:

- Attention to outputs and performance rather than inputs;
- Organisations being viewed as chains of low-trust relationships, linked by contracts or contractual type processes;
- The separation of purchaser and provider or client and contractor roles within formerly integrated processes and organisations;
- Breaking down large scale organisations and using competition to enable “exit” or “choice” by service users;
- Decentralisation of budgetary and personal authority to line managers (Clarke et al., 2000);
- Stress on private sector styles of management – greater flexibility in hiring and rewards; greater use of public relations techniques (Hood, 1991).

Public sector reforms undertaken by many governments during the 1990s contained some or all of these features. They consisted of decentralisation, privatisation, incorporation, deregulation and regulation, the introduction of executive agencies, internal markets or the use of the purchaser-provider split, as well as tendering/bidding schemes (Ferlie et al., 1996).

The phrase ‘new managerialism’ is sometimes used interchangeably with NPM to describe the above mentioned changes in public sector services, but more often it connotes the set of beliefs or values that goes along with these changes (such as the drive for “efficiency”, “value for money” , “results-based management”, responsiveness to service users and “leadership” in public service organisations). In this sense, in the words of Pollitt (1993) “managerialism is a set of beliefs and practices, at the core of which burns the seldom-tested assumption that better management will prove an effective solvent for a wide range of economic and social ills”.

New managerialism is also connected to the concept of professionalisation. “Professionalisation refers to processes by which one occupational group claims to be the processor of a distinctive sort of expertise, and uses this expertise as the basis for acquiring organisational and social power” (Clarke et al., 2000). Managerialism refers to similar social and organisational processes linked to the establishment of a claim about who possesses the right to direct, coordinate or run organisations. The most visible effect of the shift towards managerialism is a growth in the numbers of public sector managers and in their power relative to other organisational groups (Clarke et al., 2000). It can no longer be assumed that “professionals know best”, rather “managers should have the right and opportunity to manage” (Pollitt, 1993).

The New Public Management ideas have dominated public sector reforms in many countries. However, NPM has been criticised for its claims for universality (applicability to all organisations and transferability of management principles from private to public sector; political neutrality), growth in bureaucratisation of new reporting systems; and for providing particularised advantages for “new managerialists” (top managers and officials in central controlling departments, management consultants) (Peters and Pierre, 1998). As a response to criticism of NPM and as a way to address its weaknesses such concepts as the Third Way Thinking (Giddens, 2001), network governance and the Public Value Theory (Moore, 1995) have appeared. For example, the theory of Public Value emphasises the active cooperation in creation of public value between individual

and corporate citizens and public agencies. It legitimises the raising of public funds to carry out collective action projects that the market would not provide. Unlike the NPM that regards all organisations as similar and to which similar management techniques can be applied, the Public Value Theory expects from public sector managers to engage more with the public and to identify the purpose the organisation is supposed to serve (Coats & Passmore, 2008).

2.4. Shifts in Higher Education Governance

Changes in higher education governance, both external and internal, have been noted and documented widely by a variety of scholars (Amaral, Jones, et al., 2002; Bargh et al., 1996; Braun & Merrien, 1999; Kogan et al., 2000; Marginson & Considine, 2000; Neave & Vught, 1991). In the next sections we will present some of their thoughts regarding shifts in higher education governance. We will especially concentrate on changes provoked by the New Public Management ideas as they are arguably the ones that paved the path for a more market-oriented behaviour of higher education institutions.

2.4.1. New Public Management ideas in higher education governance

The influence of NPM ideas on higher education has been explored by many scholars both at macro (policy and organisational) and micro (individual and sub-unit) levels (Amaral, 2004; Amaral et al., 2003; Braun & Merrien, 1999; Fulton, 2003; Kogan, 2004; Santiago & Carvalho, 2004; Trow, 1994). They trace these developments to the fact that traditional university governance became the target of fierce criticism, being labelled as inefficient, corporative, non-responsive to society's needs and unable to address the declining quality standards of teaching and research (Amaral & Magalhães, 2002). The increasing use of business management techniques in public service organisations in general was thought to address these failures. It was believed that implementation of these techniques would provide the incentive for universities to improve the quality of education and research, to improve academic productivity, to encourage innovation and, in general to improve the services the system offers the society (Dill, 1997).

2.4.1.1. The rise of the Evaluative State

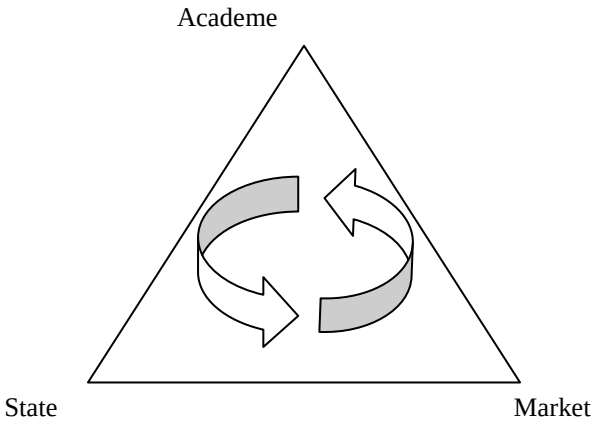
One of the features of NPM is attention to outputs and performance in the form of definition of goals, targets, and indicators of success (Peters, 2001). In higher education this led to a growing emphasis on quality assessment and performance management, i.e. on measures leading to more accountability.

Trow (1996) defines accountability as the obligation to report to others, to explain, to justify, to answer questions about how resources have been used, and to what effect. This new function of the state in its relationship with higher education has been labelled the Evaluative State (Neave, 1988). The Evaluative State is characterised by a shift from *a priori* evaluation to *a posteriori* evaluation which "seeks to elicit how far goals have been met, not by setting the prior conditions but by ascertaining the extent to which overall targets have been reached through the evaluation of "product" (Neave, 1988, p. 9). Thus a posteriori evaluation works through control of product, not through control of process. Neave calls this shift as one of the most important developments in higher education policy due to the following reasons: first, because it represents a shift from overriding concern with "input" aspects of the relationship between higher education, society and the economy; second, because it redefines the purpose of higher education in keeping with perceived needs of the market; and third, it provides a powerful instrument by which public policy may "regulate" individual institutional response. These characteristics of the Evaluative State perhaps thus represent a powerful challenge to presumptions of professional control over higher education and a clear advance in managerial controls over the individual academic (Kogan, 2004).

In relation to state authority, the Evaluative State cannot be accommodated in terms of centralised or decentralised governance models. The relationships of power and authority are far more complex to fit either of the two models. In systems based on decentralisation, the Evaluative State appears as a step towards greater central control and, in those based on a higher degree of centralism, it is perceived as giving rise to greater flexibility and greater

decentralisation (Neave, 1988). Jongbloed (2003) tries to depict these developments using Clark's triangle of coordination (Figure 9)

Figure 9 - The ever-changing role of the state



This figure attempts to show that the role of the state as well as that of the other agents in the system is constantly subject to re-evaluation. There is an ever-present dynamic in the higher education system where, in some areas, the traditional interventionist role of the government may (re-)appear, where in other areas governments create quasi-markets to promote competitiveness and knowledge creation.

Arguably, the Evaluative State offers new perspectives on institutional autonomy as well. It is viewed differently by legislators and the Academic Estate[12] (Neave, 2009). The purpose of institutional autonomy from a government standpoint is to "endow individual institutes of higher education with a distribution of power and authority, procedures and mechanisms for self-exertion to meet public expectations but to do so as a result of their own efforts" (*ibid.*). Neave (2009) argues that this handing off the responsibility for generating the capacity for reform to the individual institution comes at the moment when the state itself is unwilling or incapable of doing so.

[12] The term "Academic Estate" was coined by Neave and Rhoads (1987, p.221-222) to make for the "absence of a generic term for academia in the European context, and to remind ourselves of differences that exists".

Quality and efficiency have become the focus of the Evaluative State. Until the 1980s, it had been assumed that quality is a matter for internal regulation by academics. In 1990s as one of the elements of the New Public Management, quality assurance has become one of the most important drivers of the policies and structural arrangements (Askling & Henkel, 2006, p. 121). Nowadays, universities find themselves "sandwiched" (Sarrico & Dyson, 2000) between imposed external evaluations (linked to the extrinsic dimension of quality) and their self-evaluation of the pursuit of their own objectives (the intrinsic dimension of quality) (Sarrico et al., 2008).

The key themes of the "efficiency drive" under new managerialism include improved financial control, a greater emphasis on value for money and efficiency gains, i.e. making more with less. There are also demands for improved management information, performance management and more transparent target-setting and monitoring, and the extension of audit activities to cover substantive as well as financial performance (Fulton, 2003). These notions imply that the administrative component in university governance should be enforced in order to ensure standardised and controllable handling of the growing volume of teaching and research.

To sum up, Bleiklie and Kogan (2007) note the following main structural changes that took place under the influence of new managerialism in higher education institutions:

- A far stronger role for central authorities in the determination of university objectives and modes of working. Introduction of macro steering mechanisms, through national funding systems, evaluation and accreditation regimes or legislations, may all be tightly linked to and may profoundly affect governance at the institutional level;
- The creation of powerful managerial infrastructures that now parallel and to some extent replace the academic structures of deans, heads of departments and professors;

- In many countries, the power of academically dominated senates has been paralleled or replaced by councils, boards of trustees who incorporate representation from the world of business, public services and politics;
- A movement of power so that institutional leaders who used to act as *primi inter pares* are now nearer the position of chief executives running a corporate institution. This means less detailed interference from central authorities through laws and regulations in day-to-day operations and budgetary decisions and more focus on goal management by objectives and results.

2.4.1.2. Market influence

Market-like mechanisms are playing an increasingly important role in higher education and this has direct implications for organisational cultures and governance mechanisms of higher education institutions. Markets as a tool of coordination of higher education are sometimes linked to business-like approaches in the management of universities advocated for by the New Public Management.

Marketisation can be defined as the introduction of market-type mechanisms, where “at least one significant characteristic of markets is present (competition, choice, pricing, dispersed decision-making, monetary incentives, and so on). It excludes the two polar cases of traditional public delivery and complete privatisation.” (Koelman & De Vries, 1999). Marketisation policies in higher education are aimed at strengthening student choice and liberalising markets in order to improve the quality and variety of the services offered by the providers of higher education (Jongbloed, 2003). By strengthening the competition and introducing performance-related reward schemes, marketisation policies are also aimed at increasing efficiency (cost- consciousness or doing more with less) in the sector.

Marketisation policies are aimed at enhancing the following eight “freedoms” Table 3), which constitute basic conditions of markets:

Table 3 - Eight conditions for a market

"Four freedoms" for providers	*"Four freedoms" for consumers*
Freedom of entry	Freedom to choose provider
Freedom to specify the product	Freedom to choose product
Freedom to use available resources	Adequate information on prices and quality
Freedom to determine prices	Direct and cost-covering prices paid

Source: Jongbloed (2003: 114).

Governments have experimented with introducing several of the elements into the various sub-markets existing in the higher education system, such as the market for undergraduate students, postgraduate and international students, academic staff, research grants, scholarships, donations, etc. (Teixeira et al., 2004). The introduction of quasi-markets in higher education combines the promotion of competition between higher education providers; the privatisation of higher education and the promotion of economic autonomy of higher education institutions.

The introduction of marketisation has various consequences for the organisation, management and mode of operation of higher education institutions. Higher education institutions become more and more "hybrid" organisations operating in both the public and private domains, fulfilling public duties and undertaking commercial market activities. In other words, they become a mixture of both a government institution and a commercial enterprise (Koelman & De Vries, 1999).

The valorisation of private sector management practices has led to experiments with new forms of ownership, relations with government and management. One of the ways to improve governance of public higher education institutions and to reduce bureaucracy associated with state agencies has been turning them into "pubic corporations", "state enterprises", "foundation institutions" or "public

foundations" – there is no common terminology which may be explained by nuances in national legislations. In other words, it is to change their legal status.

A public corporation is granted increased operating flexibility in order to ensure its success, while retaining principles of public accountability and fundamental public policy (Newman et al., 2004). The status of public corporation means more autonomy in how to appoint and reward personnel, allocate resources internally, devise courses and programmes, and how to go about the business of providing research and teaching and opportunities for student learning (Clark, 1998).

The legal transformation of higher education institutions has happened in several countries and regions around the world. Newman et al. (2004) give examples from the United States of entire university systems turned into public corporations. In 1995 the University System of Oregon and in 1999 the University System of Maryland were granted this status. The decision was stimulated by widely shared concerns that the systems had become too bureaucratic to be able to be responsive and competitive (Newman et al., 2004). In Europe, the Chalmers University of Technology in Sweden became an endowed semiprivate foundation in 1994. The University is governed by its own board, which oversees a fifteen-year contract with the government that stipulates performance goals (Clark, 1998). Unlike other Swedish universities, the Chalmers board is authorised to appoint its own vice-chancellor, build relationships with corporations, conduct fund-raising, and hire and fire employees. Although all Swedish universities had a chance to apply for a new status, only one more university, the Jönköping University, did so. Both universities have performed well on government and external assessment and have attracted international attention for their entrepreneurial character (Newman et al., 2004). Following the Swedish example, the Technical University of Denmark was transformed into an independent foundation in 2000. Similarly, it was granted more autonomy in exchange for some output criteria stipulated in the development contract. The changes in this university were designed to be a pilot for the entire Danish system (Newman et al., 2004). In Austria, under the New

Organisation Act of 2002, universities became independent of the state and were transformed into public corporations with their own boards (Sporn, 2002)[13].

2.4.2. The importance of the external actors

The proliferation of policy actors in general and the diversification of policy instruments in particular has suggested that the relationship between the state and other non-state actors in education delivery and financing has changed from "hierarchical" to a "network" relationship (Mok, 2007). In this context the concept of a stakeholder has become especially prominent in recent decades. This concept originated in business studies and it identifies a stakeholder as "any group or individual who can affect or is affected by the achievement of the organisations objectives" (Freeman, 1984, p. 46). We can differentiate between external and internal stakeholders, the former coming from outside of university and the latter belonging to the academic community.

A theory of stakeholder saliency formulated by Mitchell et al. (1997) explains the degree to which organisations give priority to competing stakeholder claims. Three characteristics of stakeholders are distinguished:

- *Power* to influence the organisation;
- *Legitimacy* of the stakeholder's relationship with the organisation;
- *Urgency* of the stakeholder's claim on the organisation.

Legitimacy here is understood as "a generalised perception or assumption that the actions of an entity are desirable, proper or appropriate within some socially constructed system of norms, values, beliefs, and definitions". Depending on a combination of these three characteristics, stakeholders can be latent (possess one attribute), expectant (possess two attributes) and definitive (possess all three

[13] In East Asia the process of "corporatization" was applied on a large scale. Public universities in China, Japan, Malaysia and Thailand have been corporatized in the late 1990s – beginning of 2000s. These reforms were driven in a great part by the intensified financial constraints. Corporatized universities are allowed to borrow money, enter into business ventures, and establish companies or consultancy firms, as well as acquire and hold investment shares. Management strategies such as mission statements, strategic planning, total quality management and benchmarking are being institutionalized (Mok, 2007).

attributes). Until recently *government* in many countries has been the only definitive stakeholder. The emergence of the knowledge economy and application of market forces in university steering gave prominence to such expectant stakeholder as industry and business, for example. Some argue (for example, Etzkowitz & Leidersdorf, 1997) that industry, along with government, is a legitimate player in contemporary higher education. The presence of external stakeholders in university governance is based on the perceived need to reinforce the ties between universities and their “external” environments.

The emergence of supra-national actors can be cited as yet another factor that contributes to shaping university governance at both system and institutional level. Although the influence of these actors is not necessarily directly exercised, one cannot deny the existence of higher education policy at the European level. The objectives set by the Lisbon Strategy and consecutive Framework Funding programmes to support collaborative research and such intergovernmental initiatives as the Bologna process all affect national systems of signing countries and cannot be ignored by the national education ministries (Ferlie et al., 2008).

Thus, coordination of higher education has changed from regulation dominated by a single actor to forms in which various actors at various system levels coordinate the system (multi-level, multi-actor governance). Coordination increasingly takes place through interconnected policy levels with a substantial number of actors, influencing the agenda setting, policy development, policy determination, policy implementation, and evaluation (Leisyte, 2007).

There is another dimension of a stakeholder approach that can be applied to higher education institutions. Given the characteristics of the university as an organisation—professional domination, fragmentation of decision-making and diffusion of power—stakeholder identification takes place not only at the central institutional or management level but at other levels as well (Jongbloed et al., 2008). The attention must be paid not only to identifying external stakeholders at the senior management level but to trying to communicate with other

organisational levels for similar identification process. A dialogue between the internal stakeholders is necessary for defining an institutional strategy.

2.5. Summary of the Chapter

In this chapter we first of all looked at universities as organisations and presented their unique characteristics and organisational models. We then described the concept of governance, and theoretical models devised by Clark (Clark, 1983), and Neave and Van Vught (1991) that analyse the relationships between various actors involved in higher education coordination. We also looked at the changes that have taken place in the public sector as well as higher education governance and that such aspects of governance as autonomy and authority have been re-evaluated during the past several decades. A more general movement in the public sector towards more efficiency and responsiveness reflected in higher education through the introduction of market mechanisms, business management techniques and accountability measures.

The next chapter will be dedicated to the central theme of our study: revenue diversification. In our opinion, it is a response to changes in the funding environment and to new organisational arrangements created by governance changes. Therefore, we will be interested in both the funding sources through which diversification occurs and organisational changes that allow and facilitate the exploration of these additional funding sources.

CHAPTER 3 – REVENUE DIVERSIFICATION AND ENTREPRENEURIAL GOVERNANCE

Revenue diversification has gained relevance in the European context due to at least two reasons. First, is the aforementioned misbalance between available public resources and the growing demands placed on higher education institutions (Section 1.1). Second, policy makers have been increasingly looking at universities as major actors in economic growth and innovation. Universities are seen as providing a highly conducive environment for innovation due to their specific features that include high turnout of human capital in the form of graduates who are a major source of ideas. Universities also act as natural incubators by providing support structure for teachers and students to initiate new ventures and are ideal platforms for new interdisciplinary scientific fields (Reddy, 2011). Therefore, universities are increasingly encouraged to co-operate with society at large, be responsive to its needs and seek mutual benefits in these relations.

This chapter is dedicated to the phenomenon of revenue diversification (we also use income diversification), prerequisites for its successful development and its limitations. It also looks at internal governance and management arrangements that potentially facilitate and aid the process of revenue diversification. In the second half of the chapter we explore how resource dependence and neo-institutional theories can explain organisational adaptation to new funding realities.

3.1. Revenue Diversification

3.1.1. Concept

Revenue diversification is not a new concept. For many years universities have been collaborating with industry, business firms and society at large. What is the difference then between the past and the present? For Rhoades and Slaughter (2004) the difference lies in the breadth and depth of these activities. It is also manifested through a systematic revision and creation of policies to make these activities possible; a fundamental change in the interconnections between states, higher education institutions and private-sector organisations to support these activities; blurring the boundaries between the for-profit and not-for-profit sectors;

and changes in academy practices that consist of prioritising potential revenue generation (ibid.).

In Europe, revenue diversification has been raised to a policy level quite recently. The phenomenon of revenue diversification came into the forefront of higher education and science policy especially in connection with the Lisbon Strategy and the Modernisation Agenda. The Lisbon Strategy has identified several areas where Europe was lagging behind its main competitors, especially, the US: low research and development investment; a low rate of innovation; a low rate of entrepreneurship; lack of venture capital and low Information and Communication Technology adoption (Johansson et al., 2007). In the area of research and development, the funding gap between the United States and Europe was especially related to low private contributions. Policy recommendations therefore were to increase these contributions by engaging in university-industry collaborations, technology transfer and other partnerships with the larger society (Shattock, 2008).

In the United States collaborations between universities and their external environment have been a part of the universities' mission for a long time and go back to the foundation of "land-grant universities" in the 19th century. These institutions' mission was to focus on the teaching of agriculture, science and engineering. The mission was then expanded to diffuse new knowledge especially in the areas of soil minerals and plant growth. This outreach mission was even further expanded with the transfer of results of agricultural research to end-users (Reddy, 2011). Thus, American "land-grant" universities combined missions of teaching, research and economic development. For example, the Massachusetts Institute of Technology, well-known for its industrial activity, was founded in 1862 as a "land-grant" university (Etzkowitz, 2003).

In relation to both Europe and the US, the changes in the economy have also fuelled the ability of higher education institutions to engage in revenue diversification activities. As Bok (2003, p. 15) noted: "...none of the stimuli would have borne such abundant fruit had it not been for the rapid growth of money-

making opportunities provided by a more technologically sophisticated, knowledge-based economy". The growing importance and demand for knowledge is driven by intensified international competition in business and industry (as discussed in Section 1.1). Increasingly, there is less and less return on the traditional resources: land, labour and capital. The main producers of wealth have become information and knowledge (Drucker, 1993). That is why the role of higher education and its ability to "connect" with the outside world has gained importance. Higher education is believed to help countries build globally competitive economies by developing a skilled, productive, and flexible labour force and by creating, applying, and spreading new ideas and technologies (European Commission, 2003). The emergence of this market for knowledge and its application has presented higher education institutions with opportunities to generate extra income.

The classification of revenue diversification activities suggested by Hearn demonstrates a vast range of possibilities for revenue diversification (2003):

- Instructional initiatives. These can include test-preparation courses, lifelong learning programmes, workforce retraining, distance education etc.;
- Research and analysis initiatives: technology transfer offices, business partnerships, fee-based information services, etc.;
- Pricing initiatives: differentiated pricing, for example;
- Reforms in financial decision making and management;
- Franchising, licensing, sponsorship, and partnering with third parties;
- Initiatives in auxiliary enterprises, facilities, and real estate;
- Development office initiatives: for example, appeals to donors abroad and other efforts.

However, Hearn's classification does not differentiate between public and private sources of income. Table 4 shows the combination of public and private sector

sources from which additional funding for higher education systems is generated. This is a generic model, which can be applied to different higher education systems with some variations.

Table 4 - Funding sources for higher education systems by sector

	Public Sector	Private Sector
Government	X	
Grants Commission	X	
Research Councils	X	X
Loan Agency	X	X
Students	X	X
Alumni		X
Industry		X
Business firms		X
Foundations & Charity		X

Based on Albrecht & Ziderman (1992) and Estermann & Pruvot (2011)

As it can be seen from the table, the participation of the public sector in revenue diversification is quite significant. The next section will present some income generation activities in a more detailed way.

3.1.2. Revenue generation activities

3.1.2.1. Instructional initiatives

International students provide an increasingly important revenue stream, especially in the number of countries that charge higher tuition fees to foreign students. The UK is a showcase of revenue generation by maximising foreign students' enrolments. Income from oversees students in the UK in 2009-2010 was £2.3 billion and is projected to rise to £2.9 billion in 2012-2013 (HEFCE 2013). Though the UK universities continue to be well placed to benefit from the growing market of international students due to their reputation for quality and language advantage, many European universities have followed their steps in actively recruiting students worldwide. For example, the Swiss Federal Institute of Technology Zurich offers 38 Masters programmes, 26 of which are taught in English. There are 2,150 students on English-only programmes. To date in

Switzerland almost 200 MSc courses are taught entirely or at least predominantly in English and are offered by 11 of the 12 public universities. At 23% Switzerland has one of the largest proportions of foreign students in the world. French universities are offering about 300 English-speaking programmes in all domains, but predominantly in business (Reisz, 2009).

Opening a foreign campus is another possibility for higher education institutions to tap foreign students' resources as well as to increase institution's visibility internationally and exploit academic opportunities. These branch campuses attempt to match the curriculum of the parent institution and offer an identical degree. In 2009 162 branch campuses operated worldwide. The leader was the United States with 78 campuses abroad; it was followed by Australia (14) and the UK (13). Dominant host regions are Middle East and Asia (Lasanowski, 2010). In terms of financing there are three models: fully funded by institution, externally funded (funds provided by a host country's government or private organisations in home, host or other countries) and facilities are provided by the host country (for example, Knowledge Village in Dubai) (Verbik & Merkley, 2006). These kinds of ventures are possible when the regulatory framework of the host country allows foreign education providers to deliver higher education within their borders (Shattock, 2008).

New student audiences, both national and international, can be attracted through distance education. Newman et al. (2004) report the results of a study that found that 70% of American traditional two- and four-year institutions offered online courses in 2000. Case-studies conducted in Europe as a part of EUEREK (European Universities for Entrepreneurship, their Role in the Europe of Knowledge) project also showed that establishing online courses is part of institutional revenue generation activities (Shattock, 2008).

On a domestic market, opportunities for instructional initiatives include non-degree programmes offered to the general public to upgrade their skills or acquire new competencies for the labour market. Test-preparation can be yet another opportunity to raise additional revenue. Higher education institutions may also

rethink their academic programmes' offer and tailor their courses according to students' demand. This is especially the case in professional Master's and some doctoral degrees where tuition fees are usually less dependent on government regulations.

3.1.2.2. University research initiatives

Another area that has been touched by commercialisation is university research. Higher education institutions can generate extra income from their research potential through technology transfer, commercial exploitation of knowledge and partnerships with industry. Several external and internal factors contribute to the successful implementation of these activities. One of them is the legal framework.

For example, in the US a turning point in the commercialisation of research was the Bayh-Dole Act of 1980, which gave universities ownership of patents arising from federally funded research grants. Given such an opportunity university leaders did not hesitate to make the best of it. By the end of the decade, nearly every major research university had established and reorganised an office to patent discoveries, emanating from campus research; and most developed formal channels to encourage university-inspired business with business incubators, research parks, and equity participation (Bok, 2003, p. 181). In 1985, the United Kingdom passed legislation comparable to the Bayh-Dole Act that devolved intellectual property rights from a British state agency to individual universities (Etzkowitz, 2000). A study by the OECD found that most of its member nations had adopted, or were in the process of evaluating, regulatory systems that made it easier for universities to claim title to and license inventions arising from government-sponsored research (OECD, 2003, pp. 11-12, 21-35).

Issues associated with the development of university-industry relations and the role of government in enhancing the linkages between the two sectors have been addressed by research on the so-called "triple helix" model of university-industry-government relations (Etzkowitz & Leidersdorf, 1997). In this framework of analysis, those three partners come together to create a new entity designed to establish knowledge links between universities and industry. What is specific

about this model is that the people involved remain in their own institutions (or “helixes”), but an interstitial space is added in which they all come together.

Etzkowitz (2003a) finds the entrepreneurial character of the university to be the generative principle in the development of the “triple helix”. The key elements of an entrepreneurial university in terms of research include:

- The organisation of group research;
- The creation of a research base with commercial potential;
- The development of organisational mechanisms to move research out of the university as protected intellectual property;
- The capacity to organise firms within the university;
- The integration of academic and business elements into new formats such as university-industry research centres.

There are several ways in which universities and industry collaborate. Funded research and resulting technologies with commercial potential are but one aspect of this collaboration. Student scholarships and fellowships, student internships, and recruitment, chaired professorships, classroom and laboratory support and enhancement, advisory board functions are other additional ways in which universities and industry can partner (Prigge, 2005).

Another way to form a basis for university-industry partnerships and to earn additional income is through the creation of spin-off and start-up companies, incubators and science parks (Clark, 1998). Several European countries have made it a priority to improve their policy measures for the transfer of research results between the public and private sectors. These can translate into programmes designed to increase research cooperation between business companies and public science (e.g. Germany), improving support of university-based spin-offs (e.g. Belgium), and the creation of joint research centres (e.g. Austria) (de Juan, 2003).

University-industry cooperation has become of high relevance on the European political agenda and is supported by several supra-national initiatives. Partnerships with industry have been encouraged by successive EU Framework Programmes, which provide funding for such partnerships on a competitive basis. However, the findings of EUA (European University Association) study on university-based research funding show that business investment in HE research in the EU is not yet very significant – with the exception of Belgium and Germany where it lies above 10%. The EU-15 average is below 6% (Conraths & Smidt, 2005). The major barriers to greater knowledge transfer in the European Union include cultural differences between the academic and the business communities, legal barriers, fragmented markets and lack of incentives (European Commission, 2007a). In this context a number of measures are suggested, including creating a workforce of skilled knowledge transfer staff in universities (and a professional qualification and accreditation scheme), developing a more entrepreneurial mind-set in universities, and providing for exchanges of staff between research organisations and industry (European Commission, 2007b).

The benefits from university-industry partnerships for society are in the creation of new products and services, in increasing productivity levels, and in providing qualified labour force for a knowledge economy. What are the benefits for universities in university-industry cooperation? The literature suggests that the first and foremost is additional funding for research and educational programmes as well as long-term returns from the equity growth (Bok, 2003; Prigge, 2005). Other benefits include improving market awareness, enriching teaching programmes, gaining prestige, applying knowledge, job opportunities for students and consulting opportunities for staff. These benefits do not come without a certain degree of risk, which will be examined below.

3.1.2.3. Development of “third mission”

“Third mission” of universities is related to the role they play in economic development (Etzkowitz, 1998). The other two missions are those of teaching and research. According to Etzkowitz, the third mission differs from the other two

insofar as it makes universities not merely passive agents of knowledge production, but rather power-houses of innovation and sustainable development, particularly in the local region. The development of the third mission also means that universities can pursue entrepreneurial activities with the objective of improving regional or national economic performance as well as their own financial advantages. Universities that embrace all three missions were seen by Etzkowitz (1997) as entrepreneurial universities.

More often than not, expectations about the third mission are linked with local development issues:

> In the face of declining national public resources for higher education higher education institutions are seeking: local support for their global aspirations in research and student recruitment; increased student enrolments from the local population; additional income from services provided to local businesses through consultancy and professional training; and last but not least the indirect benefits of a local environment that can attract and retain creative academics and motivated students. At a higher level, regional engagement is an outward and visible sign of the third or public service role of higher education and through which the institution can demonstrate its contribution to civil society. Through such endeavours higher education institutions are able to provide concrete evidence of the value that higher education and research add to public investment in it (Goddard, 2007).

The current policy of regional development focuses on small and medium-size enterprises (SMEs) with a particular emphasis on the role of innovation in raising their competitiveness. This opens up the way for links into the research base of local universities. The experience of Silicon Valley in California and Route 128 in New England assumed great significance in relation to the possibility of creating new industrial districts or regenerating older districts through strong links with research-intensive universities (Goddard, 2007). While not all universities can become a hub for new industries, university based networks can form the hub for a wider learning region (Shattock, 2003).

Cooperation between universities and regions is not limited to industry and business cooperation. For example, the new emphasis on social innovation,

tourism, the creative industries and welfare widens the academic domain from science and technology and medical faculties to the arts, humanities and social sciences. Universities located in cities (especially when they are located within the city, and not "outsourced" in a faraway campus) play an important role for urban planning, collective transport, leisure and cultural activities, notwithstanding their direct role with their museums, their sport teams and arenas, and more and more their law shops or other activities in support of local citizens (Laredo, 2007). Thus, besides the economic dimension, third mission has a social dimension as well which manifests through involvement of universities into social and cultural life. Table 5 below lists third mission elements and indicators to measure them, proposed by the PRIME-OEU Project[14]:

Table 5 - Third mission elements and indicators

Issue	Focus	Indicator
Human Resources	Transfer of embodied knowledge in PhD students and graduates	The number and share of PhD holders going to industry and public services
Intellectual Property	Codified knowledge produced by the university and its management (patents, copyright)	Patent numbers and licences granted and fees received
Spin Offs	Knowledge transfer through entrepreneurship	A typology of relationship between spin-off firms and labs has to be considered (staff that left, staff still involved, research contracts, licences granted...)
Contracts with Industry	Knowledge co-production and circulation to industry	Number of contracts, amount as a share of total resources, type of partners
Contracts with Public Bodies	The "public service" dimension of research activities	Similar aspects as for contract with industry apply
Participation into Policy Making	Involvement in the shaping and/or implementation of policies (at different levels)	Number of advice to regional, national, international policies from university, number of reports and publications on policy issues

[14] PRIME stands for Policies for Research and Innovation in the Move towards the European Research Area and OEU stands for Observatory of the European University

Involvement into Social and Cultural Life	Involvement of the university in "societal" (mostly "city") life	There is little accumulated knowledge on how to account for such activities
Public understanding of science	Interaction with society The choice has been to focus here only on "dissemination" and interaction with the "general public"	follow sets of activities deployed (open days, involvement in scientific fairs and the like, involvement into general press and science journals for the public, involvement in the different media, construction of "dissemination" and "interactive" websites, involvement into activities directed towards children and secondary schools...)

Table 5 shows how multifaceted third mission activities can be. Experience from previous studies also indicates that third mission activities are difficult to measure, as there are no common indicators and data are not readily available at institutional level, or collected systematically by universities (Guldbransen and Slipersaeter, 2007).

Funding for third mission activities tend to be programmatic and each country adopts its own priorities. In most cases the countries have developed temporary initiatives in the form of grants, call for projects or joint programmes to facilitate collaborative research (Goddard, 2007; Shattock, 2008).

Third mission activities present a particular interest for our study as one of the case-study universities was founded with a regional focus. Location and local economic factors can determine both the character of the university and the kind of third stream activities it engages in (Shattock, 2008).

3.1.2.4. Philanthropy

Private donations come from many different sources: from alumni, parents, other individuals, corporations, and foundations. Philanthropy has a long history in connection with higher education in the United States and in recent years it started to expand to European countries as well. A new development is the spread of

American-style endowment campaigns. For example, in the UK, at the end of financial year 2006-2007, 131 institutions reported £513 million in total funds raised from 132,000 donors. Five years later, 152 institutions reported £693 million from more than 201,000 donors (More Partnership, 2012). To support philanthropic activity, the Government introduced in 2008 a matched funding scheme managed by the Higher Education Funding Council for England. To encourage donations, smaller contributions were matched pound for pound by public funds, while bigger ones could be matched at 1:2 or 1:3 with a cap of £2.7 million (Fearn, 2009).

In a more general way, an increasing number of universities have turned their eyes to a private sector personified in their alumni. Many higher education institutions have set up development offices and created extended data-bases of their graduates.

Successful higher education philanthropy requires at least four essential factors, according to Jonhstone (2005). The first is wealth accumulated in the society. And the more unevenly the wealth is distributed the easier is the philanthropy, at least the very large gifts. Second, it is the favourable tax treatment of donations. The third feature of successful philanthropy is institutional support at the university level: cultivation of alumni and friends, record keeping and research, the involvement of institutional leadership and reliance on volunteers among prominent alumni who would inspire classmates, friends or colleagues for philanthropic support. Finally, another success factor is the culture of philanthropy. This means a culture of giving and volunteering; of giving to higher education, in addition to giving to religious or cultural organisations; of giving generously and giving at least sometimes jointly and anonymously, rather than giving in a way to be singled out.

Philanthropy is also a costly, time and resources consuming activity. It also has to be mentioned that philanthropic support of higher education is limited, uneven and slow to develop (Johnstone, 2005). However it can also be a feasible and valuable supplement to government funding. Fund raising in the European context is quite

different from that of the US with its tradition of giving for education. At the initial stage friend raising is more important than fund raising *per se*. To be successful in attracting alumni contributions, time and money have to be invested in the creation of a lasting relationship.

3.1.2.5. Other activities

Universities often receive assets in non-cash forms, such as land. Land can generate significant revenue by leasing to agricultural firms, or utilising urban centres for development. Universities that have successfully adopted this approach have either leased out assets to private enterprises or established independent firms to manage assets. Another common form of assets is underutilised facilities. Universities can rent out conference facilities (Clark, 1998), or let private enterprises to exploit university facilities at night time or summer, when many universities are closed. Thus, the University of Warwick has developed conference centres and short courses for industry, using staff as well as drawing on academics to create new revenue streams for the University.

Some countries have pioneered innovative financial techniques in the area of private finance. For example, securitisation has been used to facilitate the issuance of student loans and the payment of tuition. Securitisation allows the investors to transform illiquid assets such as student loans into tradable assets. “This process allows markets to place a price on the risk of default and sell this risk to willing investors via a bond issuance. Governments or private issuers of student loans benefit through easier access to credit markets, universities can access future tuition proceeds to fund expansion, and students have easier access to loans. The net result is an increase in the number of individuals and institutions able to invest in education” (Hahn, 2007).

Securitisation of student loans has been used primarily in the United States. Most cases outside the United States are in the United Kingdom. Though the use of securitisation in education is limited so far, these developments suggest that governments and universities will increasingly have the option of turning to this financial technique to finance higher education (Hahn, 2007).

The above mentioned innovations in private finance demonstrate that there are numerous opportunities to explore in this regard. The use of private finance adjusted to the national context can help higher education to meet the challenges of the rapidly changing societies.

3.1.3. Prerequisites for revenue diversification

The 2008 OECD publication noted that institutions in most countries do not seem very dynamic in seeking external sources of funding. Resources, raised externally, typically represent a minor fraction of institutional budgets, which most often reflects insufficient awareness of the potential for diversifying and increasing revenues as well as the lack of drive to build commercial or philanthropic incomes (OECD, 2008b, p. 198). Income from the sale of other academic services is only a small part of the income of higher education institutions in most countries.

However, other studies into the changing nature of university income have demonstrated that institutions all over Europe have taken considerable steps towards income diversification. Innovation and entrepreneurialism are not spread evenly across all institutions and national systems of higher education, but empirical evidence show that different kinds of institutions generate different kinds of innovation and entrepreneurial activity, and generalisations can over-simplify the real situation (Shattock, 2008). The findings from the EUDIS (European Universities Diversifying Income Streams) project report that over 80% of higher education institutions (140 in a sample from 27 countries) are seeking to diversify their funding sources (Estermann & Pruvot, 2011).

The success in attracting alternative sources of funding depends on several factors. Legal status and framework, governance and management arrangements clearly have an impact on the ability of higher education institutions to generate extra income.

3.1.3.1. Autonomy

A study on university autonomy in Europe analysed the relationship of financial and legal autonomy and financial sustainability of higher education institutions and

concluded that more autonomous universities are better able to attract funds from different sources (Estermann & Nokkala, 2009). Some aspects of financial autonomy include:

- the extent to which higher education institutions can accumulate reserves and keep surplus on state funding;
- the ability of higher education institutions to set tuition fees;
- their ability to borrow money on the financial markets;
- their ability to invest in financial products;
- their ability to issue shares and bonds;
- their ability to own the land and buildings they occupy.

Many European countries have passed legislation extending the financial autonomy of higher education institutions. For example, the financial and legal status of Finnish universities has changed in 2009 after passing of the "University Act". According to it, universities are given more financial freedom, external funding is facilitated as well as the possibility to participate in the establishment of businesses. In Portugal the new Legal Regime of Higher Education adopted in 2007 allows for the transformation of universities into public foundations operating under private law. Though practical results are yet to be seen, in theory this new legal form gives more financial flexibility to institutions by freeing them from the bureaucracy of public administration. A necessary condition for an institution to become a foundation is to be able to earn at least 50% of its revenue.

A recent study by the European University Association (Estermann, Nokkala & Steinel, 2011) concluded that financial autonomy is crucial for universities to achieve their strategic goals. However, according to the data, in almost all systems universities receive their funding for the period of one year, which makes long-term planning difficult. Universities in the majority of European countries are also limited in setting tuition fees for bachelor degrees and are not entirely free to set the salaries of their staff. Other insights from this study include:

> … a positive correlation exists between the degree of diversification of the university's income structure and its perceived degree of staffing and

> financial autonomy. Noticeable positive correlations can be found in particular between income diversification and the ability of the university to invest in stocks and shares on the financial market, to borrow from banks or to carry over financial surpluses. The possibility for universities to recruit academic and administrative staff freely is also positively linked to the degree of income diversification. These findings tend to confirm the hypothesis whereby the capacity for the universities to set up an adequate staffing policy and to operate as independent financial actors is a necessary condition for the successful implementation of an income diversification strategy.

It is necessary to mention that autonomy per se does not guarantee successful income diversification. It is a prerequisite but it does not drive entrepreneurial activity (ibid., 2011).

3.1.3.2. Legal framework

Along with enhanced institutional autonomy, other legal arrangements may facilitate engagement of universities with income generation activities.

For example, the ability of universities to create satellite entities governed under private law is reportedly beneficial for income diversification (Estermann and Pruvot, 2011). The main reason for setting up these entities concerns organisational and financial flexibility.

In Section 3.1.2.2 we also mentioned intellectual property laws that devolve the rights to invention from state agencies to universities.

3.1.3.3. Incentives

Revenue diversification can also be stimulated through a system of incentives. The participants of the EUEREK project (27 institutions from 7 European countries) named the fact that entrepreneurialism not being the part of an academic's career assessment as one of the major impediments. One way to provide monetary incentives is for example to give faculty members some share in the overhead that university charges on externally funded projects. Another important but often overlooked incentive is entirely nonmonetary. It refers to the

devolution of decision-making, including financial decision-making, to lower levels of the organisation. Being involved in decisions in such a way that one's voice does make a difference serves as a powerful motivating factor (Weiler, 2000).

Matched funding schemes, in which government fully or proportionately matches the amount of earned income, can be another measure to encourage income diversification. Such schemes have been implemented in the United Kingdom and Norway, while Finland has designed a one-off matching scheme for the newly created foundation universities (Estermann & Pruvot, 2011).

3.1.3.4. Entrepreneurial outlook

It has been noted, that revenue diversification requires a new set of skills and a different behaviour from higher education institutions (especially public ones) and from their members. This type of behaviour has been identified as entrepreneurial first by Clark (1998) and later by other authors (Shattock, 2008). Entrepreneurs in a business world are individuals who are innovative, independent, and willing to assume proportionately high risks for the potential of big returns. Potentially, an entrepreneur is a person who bets it all and takes a big risk for a big reward (Geneen, 1985).

> The function of entrepreneurs is to reform or revolutionize the pattern of production by exploiting an invention, or more generally, an untried technological possibility for producing a new commodity or producing an old one in a new way…To undertake such new things is difficult and constitutes a distinct economic function, first because they lie outside of the routine tasks which everybody understands, and secondly, because the environment resists in many ways (Schumpeter, 1942, p. 13).

The contemporary notion of entrepreneurship is distinguished from previous usage in a sense that it brings with it a shift from serendipitous and individual to organised and social. For example, in higher education, entrepreneurialism can be defined neither in pure economic forms, nor as an individual undertaking only. As non-profit organisations, public higher education institutions cannot risk taxpayers' money in the hope of big monetary returns. They also use generated income for

strategic development of activities of failed markets, or recycle it into entrepreneurial academic activity, i.e. use the surplus as a start-up capital for new ventures (Buckland, 2009).

In Section 3.2 we speak more of entrepreneurial forms of governance as part of organisational responses to revenue diversification.

3.1.4. Limitations and criticism of revenue diversification

Not all researchers view revenue generating activities as a positive change for universities. Although there is no hard empirical evidence on the negative effects of university entrepreneurialism, in this section we will try to synthesise some general concerns on the part of academic observers regarding revenue generating activities.

While revenue diversification can provide valuable, though limited, source of additional resources which can be used to enhance institutional quality and accessibility (Bok, 2003), or supplement staff salaries (Ziderman & Albrecht, 1995), overemphasis on these activities may be harmful in several ways.

Many view the entrepreneurial paradigm as a threat to the traditional integrity of the university (Pelikan, 1992). In their opinion, if pushed too far, revenue diversification may alter fundamentally the character of a university which is primarily engaged in instruction and research. Some writers warn that the university as an institution may be impoverished and its academic functions may shift into a generic corporate environment (Marginson & Considine, 2000). Some critics believe entrepreneurialism should be resisted (Brooks, 1993) or at least encapsulated in a special class of institutions of higher learning, fearing that an intensive pecuniary interest will cause the university to lose its role as an independent critic of society (Krimsky, 1991).

One of the potential dangers in pursuit of new revenue streams that institutions must beware of is of having public authorities come to believe that higher education can obtain enough new revenue to take care of itself without substantial additional societal investment (Johnstone, 2002). Public support for colleges and

universities could be undermined if the image of a “service-oriented” organisation is replaced by that of a commercial, money-making enterprise (Anderson, 1990).

A number of authors point out downsides that may be encountered by colleges and universities engaged in entrepreneurial activities. Anderson (1990) lists three types of potential risks. First, colleges and universities expose themselves to business risks: commercial ventures can lose money. Second, there are management risks. Whereas in commercial enterprises, evaluation and control are conceptually simple because outcomes are measured in dollars, colleges and universities are more complex because the goals are multidimensional and involve a significant degree of value judgments. In addition, managerial time demands can be significant, and the payoff may not be worth the investment of the administrator’s time. Buckland (2009) notes that without good costing practices, universities will find it impossible to measure whether funding from a diversified base of activities and/or sources is contributing to the institution’s financial resource, or whether it is a drain upon it. The recent study by EUA addresses the problem of full costing which enhances the ability of higher education institutions to negotiate and price activities, which in turn lead to higher cost recovery of project costs and contribute thus to financial sustainability (EUA, 2008).

There are as well image risks, squandering the existing support for the institution’s culture and goals. The pursuit of commercial profit is likely to divide faculty members and whole departments into haves and have-nots.

In the case of enrolment policies, lowering admission standards in order to accommodate larger numbers of fee-paying students can undermine academic standards and educational quality. Similarly, commercial research can divert some researchers from exploring more interesting and intellectually challenging problems thus lowering the quality and the share of basic research. Another danger, noted by some writers, is the secrecy of research results. The community of scholars, freely sharing their ideas and materials in a common quest for knowledge, may be compromised by commercial firms’ requirements to keep any valuable results away from competitors (Bok, 2003).

There is a continuing debate in the literature on the general influence of markets on higher education institutions (Newman et al., 2004; Teixeira et al., 2004). It is argued that faculty's freedom for research and teaching is becoming more and more constrained by market demands; the academic community is eroding due to fragmentation, differentiation and competition and internal quasi-markets are replacing the community of scholars. It is feared that democratic collegial deliberation is being gradually replaced by managerial decision-making on the grounds that collective decision-making is time and energy consuming and therefore is inefficient under market conditions.

Another problem is that by using the market as a regulator of higher education government authorities can create a winner-takes-it-all competition that would lead to the failure of useful institutions (Newman et al., 2004).

However, there are examples of seemingly successful symbiosis between entrepreneurial and collegial cultures. For example, the University of Warwick is documented to have a strong collegial culture and student participation as well as being entrepreneurial (Shattock, 2003). The EUEREK project's results also demonstrate that shared governance characterised by a strong governing board but at the same time strong participation of academics in academic matters, is an important condition for entrepreneurialism (Mora & Vieira, 2008).

In the next section we will explore organisational responses to a changing funding environment in more detail.

3.2. Organisational Responses to Revenue Diversification

In response to the changing state-higher education relationship and consequently changing governance patterns at the system level together with resource scarceness, some institutions have started to explore "pathways of transformation" (Clark, 1998) in order to survive and prosper in a new environment. Clark (1998) points out that the need for university transformation stems from the disturbing imbalance modern universities have developed with their environments. This imbalance is rooted in the fact that demands on universities outrun their capacity

to respond. Several normative models of institutional governance have been described in the literature, namely, corporate enterprise (Marginson & Considine, 2000), entrepreneurial university (Clark, 1998), adaptive university (Sporn, 1999) and learning university (Mulford, 2000). These models are “examples of efforts to find a proper balance between centralisation and decentralisation, between internal (academic) influences and external (corporate and/or market-dominated) influences, between organisational stability and flexibility, all in order to maximise the capacity for institutional development within a frame of state control” (Askling & Henkel, 2006).

Kogan et al. (2000) state that the change in governmental preference for a particular type of knowledge – the one that is useful and likely to appeal to the market – will also affect its view of its relationship with universities and how they should be organised. The authors conclude that if the government expects universities to be visibly and calculably productive, its perception of them moves from that of the independent institution driven by intellectual curiosity, either towards a more hierarchical model of relationships with the state and a managerial view of university internal government, or in the other direction to more market styles of activity and organisation. Following this thinking we may hypothesise that the need to pursue revenue generation activities will eventually elicit a change in structure, as the university develops the mechanisms it needs to sustain itself in the new environment (Eastman, 2006). According to Eastman the mix of institutional revenue (predominantly public funding, mixed or predominantly private) influences the following organisational attributes: mission, economic logic, tax status, goals, hierarchy, faculty power, responsiveness to students/clients, budgeting and degree of cost accounting and control. The author suggests that as institutions move away from the state towards the market, their goals become narrower, their administrative hierarchies become more pronounced and the power of their faculty diminishes. They also seem to tie resource allocation more closely to market demand, pay more attention to student satisfaction, and more actively account for and control costs.

Some of these assumptions are confirmed by other scholars as well. Sporn (1999) argues that in order to adapt universities have to develop clear mission statements or goals; an entrepreneurial culture; an internal university structure which is differentiated into sub-units, rather than being monolithic; professional university management and committed leadership. In his study of five European universities and of how they changed their character to become more adaptive Clark (1998) identifies five constituents of transformation: the strengthened steering core, the expanded developmental periphery, the diversified funding base, the stimulated academic heartland and the integrated entrepreneurial culture. While the steering cores of Clark's case-study universities were reinforced, they remained closely connected to the academic heartland. It also has to be mentioned that the "move" towards entrepreneurial culture does not mean for Clark and his followers commercialisation of higher education. He states it very clearly (Clark, 2000):

> Entrepreneurial character in universities does not stifle the collegial spirit; it does not make universities handmaidens of industry; and it does not commercialize universities and turn them into all-purpose shopping malls. On all three counts it moves in the opposite direction...
>
> This [entrepreneurial] narrative is much needed as a counter-narrative, one that challenges both the simplistic understanding of the university as a business, (...) and the simplistic depiction of universities as passive and helpless instrumentalities whose fate is determined by irresistible external demands.

The need to strike the right balance between external and internal demands is also emphasised by Zemsky et al. (2005) who suggest that the academy should strive to be "mission centred and market-smart". Mission centred means that universities should focus on the things they intend to accomplish: provide high-quality education and research, propagate cultural values, etc. Market-smart means exploiting marketplace opportunities wherever this can be done without undermining their values to an unacceptable extent (Massy, 2009). An implication for decision-making about revenue generation is that some activities can be approved for purely pecuniary reasons if they do not stray too far away from the

university's mission. It means that market has legitimate presence in the academe as long as it serves the agreed objectives.

Shattock (2000; 2003) also points out that success in universities has to be first of all measured in its core missions, i.e. teaching and research.

> Those universities with the highest levels of performance in the core business of teaching and research are generally also leading players in extending their role in society as a whole (Shattock, 2003, p. 22).

Shattock views new university governance based on shared decision-making, i.e. an on-going dialogue between governing bodies and academic community. He argues that institutions work best when governance is seen as a partnership between the corporate and the collegial approaches (Shattock, 2002, p. 243). Clark (1998, p. 148) goes even further. In his entrepreneurial university "collegiality is put to work in a different way". Collective forms of entrepreneurship put collegiality to work in the service of hard choices.

> "Transformation occurs when a number of individuals come together in university basic units and across a university over a number of years to change, by means of organised initiative, how the institution is structured and oriented. *Collective* entrepreneurial action at these levels is at the heart of the transformation phenomenon." (Clark, 1998, p. 4).

It can be argued that success in university's core business of teaching and research is underpinned by financial stability and good financial management. The availability of resources at the right time, even if they must be competed for, and the existence of a well understood process of financial reporting and administration, provides a secure financial basis for institutional activities (Shattock, 2003).

Revenue diversification means engaging the marketplace. Universities find themselves operating at the same time in several markets for financial resources: they compete against each other for government funding for teaching and

research, they try to attract students for tuition fees money and formula-based government funding as the latter is tied to enrolment numbers, they also have to look for extra non-government revenue. These markets can be broadly divided into two types: one managed by the state and which is to a large extent artificial and the other one that draws on non-state sources. Each type of financial flows requires different arrangements for financial management and the changing funding environment poses to it various challenges.

The state managed market can include competition for national students, competition for government research funding, competition for research grants and contracts from research councils or foundations.

Criteria used in the funding formulae related to the number of enrolled students are still dominant in government-based funding. Therefore, student recruitment and retention represent significant contribution to institutional financial stability. The challenges of attracting, retaining, educating, satisfying and graduating a student create a complex process which can be addressed through strategic enrolment management (SEM) (Taylor et al., 2008). SEM is a process designed to help an institution to achieve and maintain optimum recruitment, retention and graduation rates. SEM should be a part of an overall institutional planning process. An institution can apply different strategies in order to attract and retain students. One can concentrate on building an image and establishing a reputation. If reputation is to be considered as one of institutional assets, then some steps need to be taken to manage it and a strategy for maintaining and enhancing it should be adopted. Shattock (2003) suggests that TV or radio presence, carefully planned open doors days, bringing in prominent personalities to university events, organising cultural events on campus – all this can enhance a university's reputation.

Another strategy is through monitoring student satisfaction. This can be done through student evaluation forms, for example. Received feedback can be used in institutional planning. Creating new courses tailored to a special segment of student population can be another strategic response on the part of institutions. In

structural terms, several offices can be attributed to student services: offices of admission, orientation, retention, recruitment and marketing, financial assistance, international student services and career services among others.

It has been observed that when income is derived from many sources, institutional management must be sufficiently flexible to respond to opportunities that arise, but at the same time contained by a broader university strategy for the institution not to lose the sense of purpose (Williams, 1992). These requirements have led in many cases to strengthening the role of central administration (Bleiklie & Kogan, 2007; Clark, 1998; Williams, 1992). Strong central leadership is seen as the key to institutional success and this leadership is as likely to be managerial as academic.

Another development concerns university administrative bodies that used to be dominated by academics and now incorporate representatives from the world of business, public services and politics. This arrangement is believed to bring universities closer to their environments and make knowledge production more relevant to the needs of the local economy.

An alternative approach to university management has been the devolution of managerial decisions to individual departments and academic units (Shattock, 1999). This approach is based on the assumption that devolution of financial responsibilities to departmental cost centres encourages awareness of the opportunity cost of resources and provides incentives for income generation (Williams, 1992). The weakness, however, of financial devolution is that rather than breeding initiative and dynamism, it creates conservatism and defensive mentality on the part of individual units (Shattock, 1999).

Besides the rearrangement of the balance of power between the central management level and the university's basic units, there emerged new organisational structures or new administrative posts to be able to deal with new funding environment. Depending on an overall strategy institutions may appoint or increase the number of senior officers concerned with fund raising; business and industrial liaisons; overseas students and public relations.

New requirements for universities' contribution to economic growth and local industry development have changed the relationships between higher education institutions, industry and the state. Several theoretical contributions have been made for better understanding of these developments. Etzkowitz' (1997) "triple helix" model and Gibbons' (1994) mode two of knowledge production are the examples of this line of thinking. In short, these authors emphasise the growing link between industry-university-government in the production and exploitation of knowledge. The way knowledge and innovations are produced is not linear anymore, but is based on multidisciplinary research. These demands have had an impact on academic organisation (Shattock, 2003). Cross departmental research units and centres are being created in order to promote research. These research centres are often formed outside the department as the research leaders need a certain degree of autonomy to be able to coordinate activities. These new arrangements not only require new skills and policy mechanisms but they raise profound questions about decision-making regarding these initiatives: should decisions be treated through some separate "commercial" decision-making process, or should they be integrated into the normal mechanisms. Shattock (2003) suggests the division of decision-making between a commercial body, operating like a company for decisions related to third stream revenues, and an academic body for decisions related to matters of academic organisation.

Whatever the organisational structure adopted by the university there is no simple answer or the best approach to decision making about revenue initiatives. Hearn (2003) notes that in making revenue choices, leaders need to consider whether the prospective activity to be pursued is really required by economic or political conditions, or simply holds the prospect of producing bonus revenues for the institution. A clear-cut answer to this question is unlikely but if the logic of pursuing the activity seems closer to the "bonus" rationale, leaders need to ask whether its pursuit may eventually disrupt the institution's organisational culture and deflect it from its current core mission.

To be able to survive financially, institutions need to review their current strategic positioning and apply new strategies if necessary. The OECD (2004) offers a set of questions institutional leaders might ask themselves:

- Are we competing regionally, nationally, internationally?
- Is our business teaching; world-class research; applied research; work with business and the community?
- In which areas are we a market leader?
- How do we compare with our competitors?
- Do we have a distinctive market niche?
- How secure is our student base?
- Are we too dependent on one or two key sources of funding?
- How are these factors likely to change over the next ten years?
- Should we be positioning ourselves differently, entering new markets or withdrawing from some of our existing activity?

The new types of financial initiatives bring some new types of risk to institutions. To deal with this more complex risk environment, institutions need a more strategic and systematic process of risk assessment and risk management, and this has to penetrate throughout the whole organisation if it is to protect institutions from serious financial failures (OECD, 2004).

The way of implementing new revenue-generating activities presents various questions for university management. First, structural changes may be necessary. However, restructuring raises a number of questions as well, namely, about the relationships among existing stakeholders and constituents (funders, government leaders, faculty, staff, students, families, the press, etc.) and the way structural changes are going to affect them.

Successful implementation of new revenue generating activities also depends on the entrepreneurial spirit of members of the institution and on cultural and organisational conditions necessary to support this venture (Clark, 1998). Senior administrators can be essential to revenue initiatives. In particular, they can

establish what Clark (1998) calls the “steering core” for entrepreneurial efforts. Developing and sustaining a culture supportive of change requires leaders who are oriented to problem solving, operate on trust and with openness, are self-critical, are internally responsive and flexible, and provide expert attention (Davies, 2001). The increased autonomy of institutions gives more power to institutional leaders to become agents of change. University rectors increasingly have to combine the roles of academic leadership with strategic business management (OECD, 2004).

After we have presented different changes that are taking place in the internal governance and management of universities, we will turn to two organisational theories that will help us to assess and explain organisational responses of Portuguese universities to revenue diversification.

3.3. Organisational Theories of Institutional Adaptation

The above mentioned shifts in funding and governance have created a different institutional environment for universities which is manifested through new rules, norms and values. This section will briefly outline two theoretical approaches often explored by higher education researchers in trying to assess and explain change in organisations caused by external factors. Together these two theoretical models are believed to give a broader picture of how universities may react to governmental policies, in our case, funding policies.

3.3.1. Resource dependence theory

Radical reform is rarely generated internally. In higher education the most profound changes have often occurred as a result of external events and pressures. Not all organisations respond in the same way to external change. To examine these organisational responses in their own right, governance theories should be complemented by other theoretical approaches (Maassen, 2003, p. 38).

When trying to account for changes that take place over time in the structure of any organisation, social scientists often use a conceptual framework known as resource dependence theory (Chevaillier, 2002, p. 82). Resource dependence

theory holds that the internal behaviour of organisations can be understood only by reference to the actions of external agents. Instead of seeing organisations as self-directed and autonomous actors pursuing their own ends it argues instead that organisations are other-directed, constantly struggling for autonomy and discretion, confronted with constraint and external control (Pfeffer & Salancik, 1978, p. 257). Contrary to other organisational theories that perceive organisations as mainly reactive, resource dependence theory assigns to them an active role in responding to environmental changes.

The resource dependence theory assumes that no organisation is able to generate all resources it needs. Similarly, it cannot perform all activities necessary to be self-sustaining. Survival is the core objective of each organisation and the key to organisational survival is the ability to acquire and maintain resources (Pfeffer & Salancik, p. 261). Resources can be raw materials, finances, personnel, services, or production operations that the organisation does not perform itself. Resources can be characterised by the *relative magnitude* of the exchange, meaning the share of resources provided, and by the *criticality* of the resource to the recipient, i.e. the degree to which the organisation may continue to function in the absence of the resource. When resource flow is unstable the organisation's survival is threatened. Under such circumstances organisational efforts are directed at regaining stability, at removing the source of the threat to the organisation (Slaughter & Leslie, 1997, p. 69). There are various strategies that organisations employ to deal with the changing environment. They can attempt to absorb dependence and to decrease uncertainty: completely, through merger, or partially, through cooperation or the movement of personnel among organisations. They can also create new niches and change dependencies themselves. Organisations can enter or leave niches as they see strategically fit and useful for them. For example, a decrease in state funding in universities creates a certain level of uncertainty in their environment. In response, the university tries to look for new niches by diversifying their funding base and carrying out services and research for other clients.

The resource dependence approach implies that organisational responses to external demands can be predicted from the situation of resource dependencies confronting it. The more dependent the actor is on a particular resource, the less powerful it is. However, this link is not deterministic and “automatic” (Gornitzka, 1999, p. 8). Organisations are usually in a position of interdependencies: an organisation not only needs the resources from outside, it itself can possess vital resources needed by other organisations. In this view, organisations are not powerless entities. Instead, the underlying model is one of influence and countervailing power: the greater the power of external stakeholders the greater the environmental determinism, whereas greater organisational power suggests greater capacity for organisational choice.

An important aspect of resource dependence perspective is that it gives importance to decision-making at the sub-unit level. “The contest of control within the organisation intervenes to affect the enactment of organisational environments. Since coping with critical contingencies is an important determinant of influence sub-units will seek to enact environments to favour their position” (Pfeffer & Salancik, 1978, p. 261). For example, those organisational units in universities that generate extra revenue or provide services with higher market value may be assumed to exercise greater power in organisational decision-making. Thus, the combination of a focus on external control and dependencies and internal power and control relations is proposed to be the key to understanding and specifying the process of environmental effects (Gornitzka, 1999).

For the purposes of our study and following Slaughter and Leslie’s (1997) application of resource dependence theory to higher education, financial resource dependencies will be regarded. In financial terms, organisational dependence is a function of: 1) the importance of the resource to the organisation; 2) the degree of discretion the organisation has over the resource and its use; 3) the existence of alternative revenues (Pfeffer & Salancik, 1978, pp. 45-46).

Higher education in most European countries used to be heavily dependent on the state as the major resource provider. In recent years financial stability of public universities has been considerably weakened and existing resource dependencies have been altered. To restore organisational stability universities turned to seeking alternative revenues. At the same time they created new dependencies which have made governance and management much more complex. To describe financial dependency, a saying “he who pays the piper, calls the tune” is often used. To follow this metaphor, universities are encouraged to have multiple masters and play various tunes which at best can produce a symphony and at worst a cacophony. The art of university governance and management then is to strive for attaining the first outcome and avoiding the last.

Several insights from resource dependence theory may apply to our research study. For example, one of the assumptions is that organisations try to avoid uncertainties by making strategic choices. We believe that revenue diversification is part of an organisational strategy to adapt to environmental uncertainty. The dependence theory also assumes that the environment in which organisations operate is dynamic. Therefore, it is suited for studying organisational change. Thus, resource dependence theory is seen as one of the tools for interpretation and discussion of our empirical work.

3.3.2. Neo-institutional theory

Neo-institutional theory has been developed by scholars from different disciplines, namely sociology, economics and political science. Therefore, it is not uniform and has a variety of approaches to institutions, their characteristics, creation and dissolution. Despite the lack of unanimity in the definition of the concept of institutions, most definitions share the point that institutions are special types of social structures that involve a set of “rules”, both formal and informal, that influence the behaviour of social actors (Hodgson, 2006). At least three different analytical approaches, each of which calls itself a “new institutionalism”, have appeared over the past three decades. These three schools of thought can be labelled: historical institutionalism, rational choice institutionalism, and sociological

institutionalism (Hall & Taylor, 1996). In higher education research a sociological version of institutional theory is usually adopted.

Neo-institutional theories may be relevant when interpreting the impact of governance shifts at the level of each individual university. From an institutional perspective organisations operate in an environment dominated by rules, requirements, understandings, and taken-for-granted assumptions about what constitutes appropriate or acceptable organisational forms and behaviour (Oliver, 1997, p. 699). This environment constrains the organisation and determines its internal structure and, consequently, the behaviour of the actors in the organisation (DiMaggio & Powell, 1983). A central notion is that due to the external pressures organisations show conformity (*isomorphism*) in order to survive. Conformity is often of a ritualistic nature where organisations construct symbols of compliance to environmental change. DiMaggio and Powell distinguish three types of isomorphic forces. Coercive isomorphism results from external pressures exerted on organisations by other organisations upon which they depend and by cultural expectations in the society within which they function. Mimetic isomorphism functions under ambiguous goals or an uncertain environment, and organisations may imitate other organisations. The third source of isomorphic organisational change is normative and stems primarily from professionalisation "i.e. the collective struggle of members of an occupation to define conditions and methods of their work, to control the production and to establish a cognitive base and legitimisation for their occupational autonomy" (DiMaggio & Powell, 1983).

Further, in neo-institutionalism, legitimacy is seen as the dominant factor securing stability and survival. In order to gain legitimacy, internal and external parties must show "confidence and good faith" (Meyer & Rowan, 1991, p. 58). It is argued that organisations facing conflicting, inconsistent demands, about what practices they ought to use can maintain legitimacy by adopting designs that mask or distract attention from controversial core activities that may be unacceptable to some key constituents. This process is called "decoupling".

3.3.3. Combining the perspectives

Resource dependence theory and neo-institutionalism can be viewed as two complementing frameworks for analysing organisational behaviour. Both approaches underline that stability is a crucial element for each organisation. However, while from the institutional perspective stability is achieved through conformity to existing rules and beliefs, resource dependence theory suggests that organisations should actively resist environmental pressures that try to disrupt their stability.

Oliver (1991) summarises convergent assumptions of both theories and provides a comparison of how each perspective treats organisational responses to external changes (Table 6).

Table 6 - Comparison of institutional and resource dependence perspectives

Explanatory Factor	Convergent Assumptions	Divergent Foci	
		Institutional Perspective	**Resource Dependence Perspective**
Context of Organisational Behaviour	Organisational choice is constrained by multiple external pressures	Institutional environment Non-choice behaviour	Task environment Active choice behaviour
	Organisational environments are collective and interconnected	Conforming to collective norms and beliefs Invisible pressures	Coping with interdependencies Visible pressures
	Organisational survival depends on responsiveness to external demands and expectations	Isomorphism Adherence to rules and norms	Adaptation Management of scarce resources
	Organisations seek stability and predictability	Organisational persistence Habit and convention	Reduction of uncertainty Power and influence
Motives of Organisational Behaviour	Organisations seek legitimacy	Social worthiness Conformity to external criteria	Resource mobilization Control of external criteria
	Organisations are interest driven	Interests institutionally defined Compliance Self-serving	Interests political and calculative Noncompliance Self-serving

Source: Oliver (1991).

In her study, Oliver (1991, p. 151) suggested that organisational responses will vary from conforming to resistant, from passive to active, from preconscious to controlling, from impotent to influential and from habitual to opportunistic. Five types of strategic responses are proposed, which vary in active agency by the organisation from passivity to increasingly active resistance: acquiescence, compromise, avoidance, defiance and manipulation.

Acquiescence may take forms of habit, imitation or compliance. Habit refers to unconscious adherence to rules and values. Organisations reproduce the actions and practices of the institutional environment that have become historically repeated, customary or taken-for granted. Imitation refers to either conscious or unconscious mimicry of institutional models, for example, the imitation of successful organisations and accepting the advice from consulting firms or professional organisations. Compliance, by comparison, is a conscious obedience or incorporation of values, norms or institutional requirements. Compliance is considered more active than habit or imitation, to the extent that an organisation consciously and strategically chooses to comply with institutional pressures in anticipation of specific self-serving benefits that may range from social support to resources or predictability. Compromise includes balancing, pacifying and bargaining tactics. These are employed when organisations are confronted with conflicting institutional demands. While balance is the least active tactics, bargaining is the more active form and involves the effort of the organisation to exact some concessions from an external constituent in its demands and expectations. Unlike acquiescence and compromise, which constitute strategic responses in order to partially or totally conform to institutional processes, avoidance is motivated by the desire to preclude the necessity of conformity. Organisations achieve this by concealing their nonconformity, buffering themselves from institutional pressures or escaping from institutional rules or expectations. A more active form of resistance to institutional pressures is defiance. A defiant strategy that employs dismissal, challenge or attack tactics represents an unequivocal rejection of institutional norms and expectations, and is more likely to occur where the perceived costs of departure are low. In our opinion

the defiant strategy is unlikely to be used by universities because of their resource dependence on the government. Finally, there is a manipulation, which can be defined as the purposeful and opportunistic attempt to co-opt, influence or control institutional pressures and evaluations. The intended effect of a co-optation tactics is to neutralise institutional opposition and enhance legitimacy. Influence is more generally directed towards institutionalised values and beliefs while controlling tactics involves specific efforts to establish power and dominance over the external constituents that are applying pressure to the organisation (Oliver, 1991, pp. 152-158).

From the point of view of organisational structure, institutional theory contends that organisation's tendencies towards conformity lead to homogeneity of organisational structures and activities. Resource dependence theory, on the contrary, claims that rare, specialised, inimitable resources and resource market imperfections cause organisational heterogeneity, and that successful organisations are those that acquire and maintain valuable idiosyncratic resources for sustainable competitive advantage (Oliver, 1997). Institutional theory, therefore, has several implications for a resource-based view of organisational variation: (1) organisations can be captives of their own history and make inappropriate resource decisions; (2) sunk costs can be cognitive rather than economic and lead to suboptimal resource choices; (3) cultural support for resource investments may be an important determinant of their success; (4) organisations may be unwilling rather than unable to imitate resources and capabilities, especially when those resources lack legitimacy or social approval; and (5) social influences exerted on organisations reduce the potential for organisational heterogeneity .

Points three and four seem to be the most relevant to our research. Revenue diversification brings about a change of institutional rules and expectations from academically driven to market driven. For example, a new institutional environment created at the policy level highly values entrepreneurship, innovation, applied research and socially relevant study programmes. To conform to these requirements and gain legitimacy with their constituents, universities might

establish “science parks”, technology transfer units or new study programmes. However, the success and stability of these arrangements will depend to a considerable extent on how far institutional norms are modified to match the resulting operational procedures (Becher & Kogan, 1992).

Universities might also employ a “de-coupling” strategy. De-coupling mechanisms are adopted mainly for the purposes of legitimacy and are kept separate from core activities. Revenue generation activities can be conducted separately in specially created organisational units (developmental periphery) while core activities of teaching and basic research are kept untouched. Neo-institutional theory thus assumes that a changing institutional environment does not necessarily lead to organisational change but that it is more likely that organisations maintain stability since this is what they prefer (Leisyte, 2007).

The strategies for revenue diversification will as well be constrained by existing norms and values in society. For example, it has been quite difficult to raise or even introduce tuition fees in some countries of continental Europe. Another example, college athletics, a highly profitable revenue stream in the US, is not regarded as such on many European campuses.

Thus, the resource dependence and the neo-institutional theory, notwithstanding their limitations, represent an important tool to theorise about the university’s environment and its possible responses to it.

3.4. Summary of the Chapter

This chapter started by defining the concept of revenue diversification by looking at its origins both in Europe and the United States. Revenue diversification is closely linked to the entrepreneurial ability of universities and individual staff members to explore funding opportunities. We looked at different income sources in order to understand these opportunities better.

We also established that autonomy, favourable legal framework, the existence of incentives and entrepreneurial outlook are essential prerequisites for successful revenue diversification.

Among limitations and risks of revenue generation activities one can distinguish concentration on short-term objectives as opposed to long-term research goals; “waste” of time and talent for service provision; and a drift from core missions of teaching and basic research.

The chapter proceeded with resource dependence and neo-institutional theories that help understand the range of responses organisations may have to a changing external environment. While resource dependence theory suggests that organisations make strategic choices to avoid uncertainties, by changing their dependencies, a neo-institutional perspective posits that organisations do not easily alter their core activities; instead they use “de-coupling” techniques which permit them to conform symbolically to the new requirements of their environment. Interpreting these theoretical underpinnings for our research topic we may expect that in a changed funding environment, namely that of increased uncertainty and more competitiveness, universities will try to look for alternative funding sources. To succeed in attracting new revenue streams universities and their basic units will employ different strategies. They will also adjust their organisational structures to fit better the new environment, namely to get advantage of new revenue generating opportunities. They will also create organisational structures to respond better to various market niches. On the other hand universities will try to protect their core activities of teaching and research and develop revenue generation at the periphery. They will also try to subsidise activities corresponding to their mission with the marginal ones that bring in revenue but are not part of the core mission.

The following chapter will set the background for our empirical study where the above presented phenomena will be tested against realities of two Portuguese universities.

CHAPTER 4 - NATIONAL CONTEXT

The aim of this chapter is to examine the role of national context in the revenue diversification process. For this purpose the chapter analyses the historical developments of the Portuguese higher education system, its funding and governance structure. The main question addressed here will be: how have funding arrangements and governance influenced or not the development of revenue diversification. Based on the existing literature we can assume that the following factors will play a significant role: a) the change in government funding will prompt universities to respond by looking for alternative income sources; b) changes in university governance will influence the way universities deal with the external environment.

The difficulty of writing about the national higher education context lies in the fact that the Portuguese higher education system has been undergoing profound reforms since 2007. Many governance arrangements that have been true until recently have to be described in the past tense now and structures being put in place are too recent to evaluate. We will therefore be navigating between these two realities.

The chapter is organised as follows. It starts with a historical backdrop on higher education expansion. As we have seen from Chapters 1 and 2, an increase in student numbers and institutions have led to significant changes in the way higher education is run and financed. Section 2 presents the evolution of science and technology system. Section 3 shows the developments in funding for teaching and research. The chapter proceeds with reflections on system coordination and institutional autonomy in Portugal. The relationship between government and higher education institutions and the amount of autonomy the latter have are two dimensions of external governance arrangements that influence the ability of universities to diversify their funding. Section 4 will also present the internal governance structure of the Portuguese higher education institutions before the current reforms and Section 5 will describe the changes in the governance structure after the reforms. We conclude by saying that Portugal has been experiencing the stagnation or even decrease in public funding of higher

education. This has led to searching for other sources of funding and exploring institutional capacity to generate extra revenue.

4.1. Expansion and Diversification of the Portuguese Higher Education System

In the past thirty years the Portuguese higher education system is characterised by the rapid expansion of student numbers and institutions and diversification of the system through the creation of a binary divide and a private sector. However, the expansion took place at a time when the political and economic context was less favourable to the development of mass higher education purely based on public funding.

Portuguese higher education remained rather small and elitist until the mid-eighties (Teixeira et al., 2006). Before 1973 there were only four public universities in Portugal: the University of Coimbra (the only one until 1911), the University of Porto, the University of Lisbon and the Technical University of Lisbon.

The 1950s can be called a turning point in the policies regarding higher education. Under the Minister Leite Pinto (1955-1961) Portugal initiated its participation in the OECD Mediterranean Regional Project (implemented between 1962 and 1965), which underlined the importance of human capital for economic development. The notion that higher education can promote economic growth came into the forefront, thus leaving in the background the notion that it is an instrument of ideology and social control.

In the early 1970s, the OECD recommendations and the idea of interconnection between a qualified work-force and economic growth inspired the reforms of Veiga Simão (Minister from 1970 to 1974). The reforms consisted in promoting pre-school education, extending the obligatory schooling, reformulating secondary education, and expanding and diversifying higher education. The reform of 1973 laid ground for the system's expansion through the establishment of new

universities outside the major cities and creation of polytechnic institutes[15]. The reform had mainly economic emphasis and tried to approximate Portugal to the patterns of development of other Western European countries. It used higher education, in particular science and technology areas, as an instrument to fulfil this political objective (Amaral et al., 2002).

Before April 1974, access to higher education was reserved to a privileged few. The higher education system was highly elitist in various aspects: gender composition, students' socioeconomic background, the percentage of the relevant age cohort participating in higher education, and geographic distribution of higher educational institutions (Teixeira et al., 2006). Though the first signs of the expansion could be seen already in the 1970s when the number of students more than doubled from 24,149 in 1960-1961 to 49,461 in 1970-1971, the real growth in enrolments can be observed in the 1980s and 1990s continuing till the academic year 2002-2003 (Table 7).

Table 7 - Growth of enrolments, %

	1971	1981	1991	1996	2003	2006	2008	2009	2010	2011
Public universities	87.3%	76.8%	55.7%	44.1%	43.6%	46.7%	46.7%	46%	47%	48%
Public polytechnics	6.0%	14.5%	16.8%	19.6%	27.9%	28.3%	28.7%	30%	30%	30%
Private	6.7%	8.7%	27.5%	36.3%	28.5%	25.0%	24.6%	24%	23%	22%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: GPEARI MCTES (2013)

One of the reasons for such growth was the open access to higher education during the period after democratic revolution of 1974. The objective of this measure was to renovate the educational system that was highly influenced by the dictatorial regime. In the Government Programme of 1975 the emphasis was also

[15] The Minister expanded and diversified higher education system both geographically with the creation of the University of Aveiro, the University of Minho, the University Institute in Évora and polytechnic institutes in Covilhã, Vila Real, Faro, Leiria, Setúbal and Tomar; and institutionally (The University of Coimbra, for example, was authorized to create new courses in engineering and to establish a new School/Faculty of Economics).

put on the approximation of the higher education to the needs of the society and economy (Amaral et al., 2002).

To restrict an uncontrollable growth of enrolments that occurred after the revolution and to channel more students into short vocational courses, in *numerus clausus* was introduced for each university degree programme.

The restrictions imposed by *numerus clausus* and the growing number of secondary education graduates (due to the increasing coverage of the secondary education system) created by the mid-eighties an increasing gap between the number of candidates and the number of vacancies in higher education. At the same time, the government had no means to raise the *numerus clausus* due to budgetary restrictions. This context of insufficient supply of public higher education promoted the emergence of private higher education institutions.

The rapid growth of the private sector makes Portugal a unique case in Western Europe. In just a few years private institutions offered almost one-third of total enrolments and by 1991 offered more places than the public sector. It has to be noted though that the development of the private sector has not brought great diversification to the Portuguese higher education system: private institutions are mostly concentrated in Lisbon and Porto metropolitan areas and mainly offer low-cost programmes in social sciences (Teixeira et al., 2003).

From the year 2002-2003 the number of students began to fall mainly due to demographic reasons coupled with high dropout rates in secondary schools. The drop in enrolments was more accentuated in the private sector, about 7%-8%, while the public sector suffered a decrease of about 1%-2% (GPEARI). However, from the 2007-2008 academic year a positive growth in enrolments has been registered again. The increase in student numbers can be linked to some government initiatives (Decree-Law n.º 64/2006 from 21 March) for opening access for students over 23 years of age for example.

During the period of 1976-1986 the current design of the national higher education system took shape (Amaral et al., 2002). At present, higher education is provided

through a diversified arrangement of institutions, public and private, including universities, university schools (not integrated), polytechnic institutes and polytechnic schools (not integrated), with an overall of 121 institutions. This includes 15 public universities and the Open University (Universidade Aberta), as well as 3 Military and Police public university schools; 7 private universities and the Catholic University, as well as 32 private university schools and institutes. There are some institutions that simultaneously offer university and polytechnic education as, for example, the University of Aveiro or the University of the Algarve. There are 16 polytechnic basic units integrated into universities. There are also 20 public and 42 private polytechnic institutions (O Sistema do Ensino Superior em Portugal, 2012).

Higher education institutions range in size, history, subject mix and research intensity. As referred to above, they include public and private universities and polytechnic institutions. Before the implementation of the Bologna process, the number of post-graduate students remained low in all institutions, with the highest proportion of 20% in most research intensive schools. In general, public universities are more research intensive than private institutions and public polytechnics. Private institutions are predominantly teaching-only schools (Amaral & Magalhães, 2005). Legally, polytechnic institutes can engage in applied research, while basic research is reserved for universities.

The subject mix is also more diversified in the latter. According to Correia, Amaral and Magalhães (2002), private institutions have concentrated their education offer in a narrow range of scientific and disciplinary areas, generally, those requiring less investment in educational and research infrastructure, such as management and humanities. As to geographic distribution of higher education, public institutions are present in all 21 districts while private institutions are mainly concentrated in the most populated areas.

After the introduction of the Bologna process Portuguese higher education institutions have the following degree structure. *Licenciatura* is a first cycle degree and is usually awarded after a student completes a study load of 180 ECTs.

Master's programmes (second cycle) usually have a study load of 90-120 ECTS. University education has also *Mestrados integrados* for such programmes as, for example, Medicine, Dentistry, Engineering and Architecture. These have a study load of 300-360 ECTS. *Doutoramento* (Doctorate) requires three years of study and research. Since 2006 higher education institutions have also been able to administer Technological Specialisation Courses (CETs) which are non-degree post-secondary education programmes.

4.2. Evolution of the Science and Technology System

University research has become a growing activity in Portugal, especially in the last decade. It is mainly the domain of public universities, as private institutions and public polytechnics for historical or other reasons are mostly concentrated on teaching. This section will start with a brief overview of the evolution of the science and technology (S&T) system in Portugal.

The Portuguese science and technology system and science policy barely existed prior to the late 1960s (Ruivo, 1998). The principal obstacle to its development was a lack of human and material resources or, in other words, of the critical mass necessary for sustainable growth. Scientific research was conducted in research centres situated mainly in Lisbon, Porto and Coimbra and in state laboratories accountable to various Ministries, for example, the Ministry of Industry, the Ministry of Agriculture, Health, etc.

An important step in the development of the Portuguese research system was the creation in 1967 of the National Foundation for Scientific and Technological Research (JNICT), which started operating in 1969. The creation of this Institute which would coordinate research activity in Portugal and bridge the gap with other European countries in terms of science policy largely depended on recommendations from the OECD. As previously mentioned research activity was quite dispersed at that time, divided between universities and state laboratories (Ruivo, 1991, p. 28).

With the establishment of the democratic regime in 1974 the Portuguese state took clearly a task of coordinating and managing science and technology policy. The Constitution included as one of the state's priorities "science and technology policy that would be favourable to the country's development" (Article 81, Constitution of the Portuguese Republic). However, scientific research would only be formally recognised by Parliament as a national political priority in 1988 (Law 31/88).

A major impulse for further development of the S&T system was Portugal's integration in the European Union in 1986, which brought additional funding and led to the expansion and diversification of the higher education system, absorption of human resources holding doctoral degrees received abroad, and the creation of conditions for doctoral training in Portugal. From 1986 to 1995 new infrastructures were created: research grants and grants for new equipment were funded through an operational programme "SCIENCE", inserted into the first Community Support Framework of the European Community, The Portuguese S&T system also benefitted from Community Support Framework programmes in terms of "integration in European networks, the access to new areas of research, the creation of critical masses and a level of excellence in research and the reinforcement of contacts with foreign centres" (Proença, 2009). The development of infrastructures and human resources occurred mainly at universities and it is then that universities began to play a greater role in national research. In 1987, an important "Human Resources Training Programme" was initiated. JNICT became the most important agency for providing scholarships, granting around 700 scholarships in the year 1987.

However, according to Gonçalves (1996, p. 58), the period between late 1980s – early 1990s can be characterised by the lack of strategic thinking about science and technology policy. The government's coordination was reduced to obtainment and distribution of European Community's funds which became as important as national ones. What was meant to be an impulse for the reinforcement of scientific policy as one of the state's responsibilities, turned out to be a pretext to reduce the internal S&T budget (ibid.)

In 1995, the Ministry of Science and Technology was created (earlier it was the State Secretariat for Science and Technology), which demonstrates the priority that was given to the S&T system at national level. In 1997, the Science and Technology Foundation (FCT) was established to coordinate funding of research centres, individual research grants and research projects.

The development of the Portuguese scientific and technological system was stimulated by a radical reform in the evaluation of research institutions, to guarantee the independence and effectiveness of the evaluations, the publication of the respective methodologies and results, as well as the exercise of the right of appeal. Two other organisations were created at the same time: the Observatory of Science and Technology, with the purpose of systematic data gathering, treatment and analysis, and the Institute for International Cooperation in S&T (ICCTI) to promote international cooperation in science and technology. Additionally, the Innovation Agency (AdI) was created in 1993 to promote, evaluate and finance projects that could have an impact on the national economy.

The period that followed can be characterised by a rapid growth of the S&T system. In the last few decades, human resources specialised in R&D have grown regularly and represent a major driver for development and bridging the gap with other European countries (Table 8).

Table 8 - Evolution of human resources in R&D

Year	Total number of people in R&D	Number of researchers FTEs	Number of researchers in active population (‰)
1988	10883	6561	1.4
1990	12043	7736	1.6
1992	13448	9451	2.0
1995	15465	11599	2.4
1997	18035	13642	2.9
1999	20806	15751	3.1
2001	22970	17724	3.4
2003	25529	20242	3.7
2005	25728	21126	3.8

2007	35334	28176	5.0
2009	52313	45909	8.2

Source: Eurostat: http://ec.europa.eu/eurostat

The evolution of expenditure on research and development as percentage of GDP can be observed in Table 9.

Table 9 - R&D expenditure as a percentage of GDP (1982-2008)

Year	Total	Institutions[16]	Companies
1982	0.28	0.19	0.09
1984	0.32	0.23	0.09
1986	0.36	0.26	0.09
1988	0.39	0.29	0.09
1990	0.48	0.36	0.13
1992	0.58	0.45	0.13
1995	0.54	0.43	0.11
1997	0.59	0.46	0.13
1999	0.71	0.55	0.16
2001	0.80	0.55	0.26
2003	0.74	0.49	0.24
2005	0.81	0.50	0.31
2007	1.18	0.57	0.61
2008	1.55	0.77	0.78

Source: Eurostat: http://ec.europa.eu/eurostat

As Table 9 shows, the increase in public investment in R&D in recent years is matched by a steep rise in companies' investment in research activities. From 2007 the business expenditure on R&D exceeded that of higher education institutions. It is important to say though that almost all the funding (98%) provided by the business sector is absorbed by the business sector itself. Out of €241.6 million spent by business firms on extramural R&D in 2008, only €4.7 million (1.9%) went to R&D contracts with universities (GPEARI). This indicates that research links outside the business sector are rather weak.

[16] Institutions refer to the following sectors: state, higher education institutions and private, not for profit

The increase in business R&D expenditure can be attributed to a review of a tax system for corporate R&D in 2005 (SIFIDE programme). The system allowed for a fiscal deduction of 32.5% in relation to the total R&D expense, to which a further deduction of 50% could be added, associated with the increase of the expenditure in R&D in relation to the previous two years. The latest update of the system in 2010 allowed total deducting of the expenses with the first year employment of doctorate researchers.

The reasons for poor university-business cooperation can be various. Traditionally, Portuguese enterprises had a small proportion of staff with higher education, which was in line with the overall low level of qualifications in the population. According to 2008 data, higher education attainment of the population aged 25-64 in Portugal was 14.3%, while the EU-27 average was 24.3%. Excluding those employed in the public administration sector, the share will be even lower. The qualifications deficit in the private sector presents a challenge for the implementation of any technological policy. Several authors support the idea that the lack of a social base of support for science and technology can be named as one of the reasons why scientific policy had not been more efficient (Gonçalves, 1996; OECD, 1992). Another reason for poor collaboration between universities and companies has been the composition of the Portuguese economy, which until 20-25 years ago was mainly composed of low-tech companies. Table 10 shows comparative data of employment in high-tech, medium-high-tech manufacturing and knowledge intensive services in 2008 and 2009. Out of fourteen European countries, Portugal only ranks better than Greece in what concerns high-tech manufacturing employment and is fourth from the bottom in middle-high-tech manufacturing employment. In relation to knowledge intensive services it occupies the last position. This demonstrates that even with the increased investment in research inputs, the knowledge spill out is not yet significant.

Table 10 - Employment in high-tech and medium-high-tech manufacturing and in knowledge intensive services as % of total employment

	High-Tech manufacturing		Medium-High-Tech manufacturing		Knowledge intensive services	
	2008	**2009**	**2008**	**2009**	**2008**	**2009**
Belgium	1.4	1.2	4.5	4.1	45.3	46.1
Denmark	1.6	1.6	3.9	3.5	47.0	48.8
Germany	1.6	1.8	8.4	8.4	38.8	39.6
Ireland	2.9	3.0	1.8	2.0	39.0	43.2
Greece	0.5	0.4	1.2	1.1	32.4	32.7
Spain	0.7	0.5	3.3	3.2	30.6	33.1
France	1.2	1.0	4.1	3.9	42.8	43.6
Italy	1.1	1.1	4.9	5.0	33.4	33.6
Netherlands	0.8	0.7	2.3	2.0	45.8	45.5
Austria	1.1	1.1	3.9	3.9	34.9	36.5
Portugal	0.6	0.6	2.4	2.5	28.4	29.3
Finland	1.9	1.6	4.2	3.9	41.8	43.0
Sweden	0.8	0.8	4.8	4.2	49.6	50.3
UK	1.2	1.0	3.4	2.8	45.6	48.4
EU (27) average	1.2	1.1.	4.8	4.6	36.9	38.1

Source: European Commission (2011).

Last but not least the reason for historically poor cooperation between universities and private companies can be related to the statutes that governed academic careers until very recently and had not provided incentives for this interaction and knowledge transfer. The new academic employment statutes were published in 2009 (Decree-Law n.º205/2009). Among other aspects the new statutes foresee the need of each university in promoting regular evaluations of its staff, based on four criteria: quality of teaching; research performance; contribution to third mission activities; participation in the management of academic activities. It was also intended to make intersectoral mobility easier, namely to enable university professors to move to companies to develop projects. The preamble of reviewed statute indicates “the creation of conditions for the cooperation between universities and other organisations” as an important reason for the reform. In the new framework university professors may be freed from their university duties, for

specified periods, to carry out extension services or research projects outside their university. The effectiveness of these new mechanisms will depend on the regulations set up internally by each institution and also on the way they will be implemented in practice.

The above discussion does not mean that there have not been examples of successful cooperation between universities and businesses. Various initiatives can be seen as critical factors responsible for the increase in university-business cooperation. The National Institute of Industrial Property (Portuguese acronym - INPI) and the Innovation Agency (Portuguese acronym – AdI) are two organisations that stand out in their effort to offer structural support in technology transfer to universities. A network of industrial property support offices (GAPI) is an initiative of INPI which was launched to promote knowledge transfer from universities, entrepreneurs and companies; promote the use of the industrial property system and assist the parties with technical knowledge. The network included 23 offices, ten of which were established at universities. This programme helped academics to identify patentable knowledge and transfer it to the business sector. The programme was funded by INPI together with the Ministry of Economic Affairs.

Another initiative worth mentioning is the creation in 2000 of the network of Technology and Knowledge Transfer Offices by the Innovation Agency. The funding was provided by the European Regional Development Fund administered by the Ministry of Science and Technology.

An important measure has been established – Competitiveness and Technology Poles - in the context of the National Strategic Reference Framework 2007-2013 (acronym in Portuguese – QREN). Its purpose is to stimulate the development of regional or sector clusters on the basis of research and innovation through collaboration of different actors, including universities, research and technology organisations and private business firms.

Cooperation between universities and the business sector depends on university's specialisation. According to a report of the Science and Higher Education

Observatory (OCES, 2005), agrarian technologies and engineering are two scientific domains where cooperation with the business sector is the highest. Table 11 below presents data of all collaborations between universities and business as a share of total projects.

Table 11 - Participation in projects with business as percentage of total projects

University	Participation in projects with business, all scientific areas as share of total participation in projects
University of Açores	5%
University of the Algarve	13%
University of Aveiro	14%
University of Beira Interior	8%
University of Coimbra	11%
University of Évora	24%
University of Lisbon	6%
University Nova of Lisbon	12%
Technical University of Lisbon	22%
University of Madeira	2%
University of Minho	27%
University of Porto	17%
University of Trás-os-Montes and Alto Douro (UTAD)	29%
ISCTE	10%

Source: OCES (2005).

Universities with a greater share of programmes in agrarian sciences, such as UTAD and University of Évora also have more projects in cooperation with companies. They are followed by those universities with engineering and technological programmes. According to the same report, there are also joint projects in other scientific fields: social sciences and humanities (University Nova of Lisbon); exact sciences (universities of Coimbra, Porto, Aveiro, and Lisbon); natural sciences, especially marine sciences (universities of the Algarve, Coimbra, Porto and Aveiro); health sciences (University of Coimbra responsible for about half of all the projects, as well as universities of Lisbon, Porto and Nova of Lisbon)

The current strategy for research and innovation in Portugal is embodied in the Commitment to Science action plan launched in 2006. The goals to be achieved by 2009 were: to increase the number of researchers to 5.5 per thousand in active population (8.2. in 2009); double public investment in R&D from 0.5% of GDP to 1% (1.55% in 2008), to increase the number of scientific publications referred internationally to 600 per million inhabitants (in 2009 there were registered 703 publication by million people); to improve the quality of public research through internationalisation and more extensive use of evaluations; triple the number of granted patents and improve industry science relations.

The government's desire to raise research quality resulted in a strategic programme of international partnerships in science, technology and higher education, which brings together Portuguese and foreign universities, including MIT, Carnegie Mellon University and the University of Texas at Austin. The principal goal of these international collaborations has been to advance research and human resources qualifications in information and communication technologies and engineering, to provide opportunities for collaborative research and bring together universities and industry.

The current composition of the public research system in Portugal is the following: research activities are conducted in state laboratories, associate laboratories and research units, usually associated to universities. At present there are nine state laboratories and twenty-five associate laboratories[17].

Research units may have different designations: centre, institute, unit, etc. Most research units are associated to public universities (Table 12).

[17] The network of associate laboratories was founded in 2001 by contracting with existing R&D institutions whose orientation was considered of public utility. This status was conferred to selected institutions for the period of up to 10 years with intermediate evaluation at the end of 5 years.

Table 12 - Research centres accredited by FCT, 2004

Type of institution	Research Units
Public universities	384
Public Polytechnics	8
Catholic University	14
Private Universities	7
Other private institutions	20
Total	**433**

Source: FCT: www.fct.pt

The next section will look at the funding system of Portuguese higher education and legislative changes relating to funding.

4.3. Funding System

The rapid growth of the higher education system has inevitably put on the political agenda the question of its financing. Like in many European countries the biggest part of Portuguese higher education institutions' budget comes from the state.

In Portugal, public funding for higher education, including teaching and research activities, is based on the following mechanisms:

- Public funding of higher education institutions:
  - Direct basic funding of public institutions (through funding formula);
  - Contractual funding of institutions (through contracts for specific issues);
  - Direct funding of social support services (through funding formula since 2006) for: i) direct funding to students (i.e., social support of individual grants); and ii) indirect funding to students (i.e., meals, accommodation, sports, healthcare).
- Public funding for research:
  - Direct funding of research units based on their periodic evaluation and number of PhD researchers (through the Portuguese Science and Technology Foundation (FCT) defined upon evaluations every 3 to 5 years);

    - Contractual funding (e.g., Associate Laboratories);
    - Competitive funding for R&D activities (through research projects);
    - Competitive funding for people (through individual grants for research students and contracts for researchers);

- Public funding for infrastructures (i.e., buildings and equipment);
- Public funding for the diffusion of information and communication technologies .

Other sources of funding for teaching and research are student tuition fees and income from contracts and services (third mission activities), as well as international funding for research. In this section we will show the evolution of public funding and tuition fees. We would like to demonstrate that although in absolute terms the public budget for higher education has been increasing, institutional funding has diminished due to various factors. Tuition fees have become one of major additional funding sources. The next sections will concentrate on funding aspects in greater detail, namely on funding structure and legal changes concerning public higher education.

4.3.1. Evolution of the funding formula

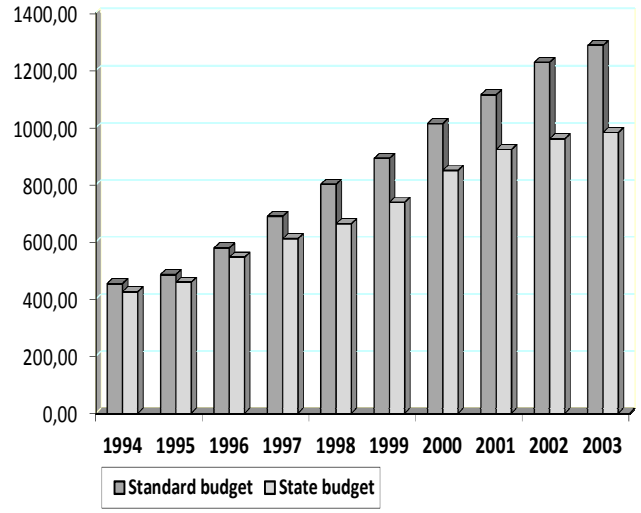
Since 1980 the budget for higher education institutions was calculated based on historical trends. The budget was corrected every year by adjusting its value to the alterations in the number of students or new courses. This funding model produced great inequalities in funding of higher education institutions which sought to be corrected by the introduction of a funding formula. Funding for teaching has been allocated by a funding formula since 1986. According to this formula funding was proportional to enrolments and included other four cost parameters: unit costs of laboratory and non-laboratory undergraduate programmes and laboratory and non-laboratory graduate programmes. This formula was applied only to universities. However, in practice higher education institutions did not adapt very well to the criteria of the formula and often the budget of each institution depended on its negotiation power with the Ministry. The situation became very complicated

for both the government and higher education institutions. In 1990 the debate about the question of funding was brought about in the “White Paper on Public Funding of Higher Education System” (Barros et al., 1990) which resulted from the effort of a working group nominated by the Ministry of Education. In this document the authors pointed out the deficiencies of the existing model of financing. They emphasised the excessive dependence of institutional financial management on Central Administration, the lack of flexibility and incentives for good financial management, the fact that institutions that generate extra revenue as well as the institutions that “save” money are punished by the reduction of their budgets. Responding to the above-mentioned inefficiencies of the system, the authors presented some basic principles on which financing should be based, namely, financial and administrative autonomy, flexibility of management of personnel and buildings, greater participation of students in the costs of higher education on the basis that free higher education produces inefficiencies and inequalities, the possibility of private institutions to apply for public funding, creation of an intermediary level organisation – the Institute for Financial Management of Higher Education that would oversee the financing of institutions and creation of the Institute of Social Policy for Higher Education that would oversee the issues of access. Though many of the propositions were not put into practice, this document started an important process of rethinking higher education funding.

The formula of 1986 was changed in 1993 by adding some more cost parameters. The formula consisted of standard ratios by study area and number of students, as well as standard numbers of academic and non-academic staff by study area and type of institution. According to these parameters a standard budget for each institution was calculated. This formula aimed at better resource allocation between the institutions by way of correcting the disparities in their budgets, thus approximating them to the standard budget. In practice, an opposite movement was registered. During the following years a divergence between the standard budget and financial capacity of the state was observed due to the increase in student numbers, increase in staff salaries and triplication of the research

component. Since the first year of formula application the government did not have the total amount of resources to allocate (Figure 10).

Figure 10 - Comparison between higher education standard budget and state budget between 1994 and 2003 (thousands Euros, current prices)



Source: Cerdeira, 2009

In 1986 Portugal integrated the European Union and benefited from some of its programmes, namely PRODEP I (Programme for Educational Development in Portugal) and PRODEP II, which functioned between 1994 and 1999. But even if European Community funding and tuition fees had been taken into account, the higher education institutions budgets were still below the standard budget (Cerdeira, 2009).

Until 2003 the formula has been based on input indicators and did not contain indicators that would take into account the quality or efficiency of the institution. In 2003 a new financing law was passed (Law 37/2003 of 22 August) and the allocation rationale has been changed to become progressively more performance-based. The government designed a new formula that increasingly considered institutional performance by moving into a more output oriented approach.

However, the proposed changes were not implemented in the following years due to inability of those, responsible for implementation, to design proper parameters. Only in 2005 under the new government such parameters were created for the budget of 2006. The new formula was also aimed at correcting the flaws of its predecessor, particularly by taking into consideration the global budget available for higher education and not the standard budget. It did not calculate an absolute value but merely allocated the available amount to the institutions. This “new” formula was based on the overall number of students, but included the following quality criteria:

- qualifications of teaching staff (measured by number of Ph.D.’s in the total of teaching staff);
- graduation rates (measured by first degree graduates and number of graduate degrees awarded).

Besides, the formula includes two institutional factors to consider each institution’s specific characteristics:

- average personnel costs;
- student/teacher ratio for each scientific area.

The application of quality criteria resulted in great disparities in institutional budgets. To avoid this undesirable effect the government introduced a limit of 3% on the increase of the budget as compared to the previous year as well as a cohesion factor.

Because of the differences in budgets calculated according to the formula and real needs of institutions, and the lack of flexibility of institutions to adjust to major cuts in their annual budget, the formula calculations had to be calibrated every year. This has increased the level of unpredictability on the amount of funds to be transferred in the future, bringing instability to institutions and making it impossible to use the formula as a management tool. Since 2007 the quality criteria have been dropped altogether.

4.3.2. Cost-sharing

Though the total expenditure on higher education has increased in the past 15 years (Table 13), the public share of budget for higher education institutions has been decreasing (Table 14).

Table 13 - Total expenditure on education as a share of GDP (from public and private sources, by year)

Year	Expenditure on education – all levels (% of GDP)	Total expenditure on higher education (% of GDP)
1999	5.4	1.02
2000	5.4	1.08
2001	5.5	1.13
2002	5.3	1.37
2003	4.3	1.29
2004	5.5	1.33
2005	5.7	1.4
2006	5.6	1.4
2008	5.2	1.3

Source: OECD, (2009, 2011)

Table 14 - Share of public expenditure on higher education institutions

Year	Share of public expenditure, %
1995	96.5
2000	92.5
2002	91.3
2003	91.5
2004	86.0
2005	68.1
2006	66.7

2007	70.0
2008	62.1

Source: OECD, (2009, 2011)

The decrease in the public share may be the result of decreasing student numbers (as the government funding is linked to the number of students enrolled), an increasing importance of tuition fees (from academic year 2003/2004 onwards) and finally, an economic crisis that Europe has been experiencing since 2007-2008.

What are the implications of a diminished government share in public higher education institutions' budgets? As in many countries across the world, one of the responses to supplement the diminishing capacity of governments to finance higher education has been the increase in cost-sharing. The amount of tuition fees paid by students shows a clear growth pattern in recent years, especially due to the changes in the funding law in 1997 and 2003. Unlike many other European countries, Portugal has had tuition fees for several decades already, but their value has dramatically increased recently. Before 1974 it represented only 3-4% of the real cost and about 8% of the national minimum salary. In 1992 tuition fees were "updated" by taking inflation since 1944 into account. This met great resistance by the student community, but in spite of the resistance, the changes were implemented. During the period of 1997-2003 the tuition fee amount at public higher education institutions equalled a minimum national salary and starting from the year 2004 there is a minimum and a maximum amount of tuition that higher education institutions can charge. The minimum amount equals 1.3 national minimum salaries and the maximum amount was established in the previous legislation and is updated each year according to the Consumer Price Index. There is no surprise that almost all universities tended to move to the high-level tuition, although it remains rather low comparing to other, especially, non-European patterns (Cabrito, 2004a) (Table 15).

Table 15 - Evolution of tuition fees, undergraduate degree, actually implemented by public universities.

	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010
University of Açores						922
University of the Algarve	620	680	780	885	900	923.4
University of Aveiro		900		949	972.73	998
University of Beira Interior	800	850	869			
University of Coimbra	852	901.23	920.17	949	971,45	996.85
University of Évora	783	803.22	820.84	844.32	994.04	996.85
University of Lisbon						996.85
Technical University of Lisbon	880.12	900			972	996.85
University Nova of Lisbon						
University of Madeira				949.14		
University of Minho	740	900	920	948	972	996
University of Porto	750	902.02	920	951.02	973.8	997.8
University of Trás-os-Montes and Alto Douro				920	970	987
ISCTE	852	901	923	946	972	980
Average (for all universities)	784.64	859.7189	879.0014	926.8311	966.4467	981.0545
Standard deviation (for all universities)	83.43413	75.55615	58.13283	37.89107	25.98144	29.38853
Average (for universities with all years available)	766.16667	847.167	880.66833	920.55667	963.88167	981.81667
Standard deviation (for universities with all years available)	86.404668	91.097525	63.497802	45.196999	32.489568	29.40899

Source: Teixeira & Koryakina (2011)

However, taking into consideration the economic context of the country and the fact that the minimum national salary is 495€, the further increase in tuition fees (if it happens) would have to be accompanied by a well-designed student support policy.

The fees paid by students are earned income for institutions. As it may be seen from Table 16, the share of tuition fees has gradually grown from an average of about 8% to 14%. Despite increased participation of students and their families in cost-sharing, their financial role in the funding of public higher education institutions is limited.

Table 16 - Share of tuition fees (including fees from penalties and other payments) in the current budget of public universities

	2003	2004	2005	2006	2007	2008	2009
University of Açores	7.7%	8.9%	9.6%	10.2%	12.1%	14.5%	15.7%
University of the Algarve	8.5%	13.1%	12.6%	12.9%	16.1%	15.9%	15.2%
University of Aveiro	9.1%	13.4%	13.8%	13.2%	13.8%	15.8%	12.5%
University of Beira Interior	10.6%	11.5%	12.8%	12.8%	15.4%	15.0%	16.8%
University of Coimbra	6.8%	8.3%	12.2%	12.5%	13.2%	14.8%	13.8%
University of Évora	8.1%	10.3%	11.4%	11.7%	12.9%	14.5%	13.7%
University of Lisbon	8.3%	14.5%	12.0%	13.1%	14.4%	14.3%	14.4%
Technical University of Lisbon	10.3%	11.7%	10.9%	13.0%	12.3%	13.9%	15.1%
University Nova of Lisbon	9.4%	11.2%	11.4%	12.2%	12.8%	13.6%	14.1%
University of Madeira	10.1%	16.4%	12.5%	12.9%	17.3%	18.7%	17.2%
University of Minho	9.7%	11.4%	11.4%	12.7%	13.9%	13.5%	13.0%
University of Porto	8.9%	13.0%	12.1%	13.5%	14.8%	15.0%	15.6%
University of Trás-os-Montes and Alto Douro	7.3%	11.9%	11.2%	12.5%	12.0%	13.2%	13.2%
ISCTE	23.5%	23.9%	23.8%	28.8%	27.6%	26.3%	25.9%

Source: CIPES, (July 2010).

Though undergraduate tuition fees are restricted by the amount set by government, the same cannot be said about postgraduate courses. Tuition fees for Master's and Doctoral degrees used to be established by each institution or its basic units. This appeared to be an interesting possibility in terms of generating additional revenue. Several institutions seized this opportunity, especially in some fields in which a Master's degree could provide important professional and monetary advantages. With the implementation of the Bologna process, most of the Master's programmes became regulated by similar legislation to that of first-cycle programmes. Presently, institutions can determine tuition fees for Master's programmes but they face several restrictions if they want to get public funding for these programmes.

4.3.3. Legislative changes

The evolution of the income structure of public universities was underpinned by legislative changes during the past fifteen years. To a large extent, university autonomy can be considered a *sine qua non* condition for revenue diversification. An important step towards increased institutional autonomy in matters of personnel management, budgeting and buildings' ownership was taken in 1997 with the Decree-Law n.º 252/97 of 26 September. The legal changes of 1997 enlarged the autonomy to obtain and manage earned income according to the criteria established by the university itself. Another important change was an increased autonomy to transfer budgetary surpluses from previous years into institutional subsequent budgets. Moreover, these surpluses from previous years became to be treated as self-generated income, meaning that the institutions could manage it much more freely than the government's annual transfers. The same legal document established the possibility for institutions to hire non-permanent staff with their own income. Such contracting allowed for greater flexibility compared to usual requirements for civil servants. Finally, the changes of 1997 launched the transfer of the buildings in the State's domain (except the buildings of public interest) to universities' ownership. However, in case universities wished to sell any part of that newly received capital, 50% of the revenue had to be paid to the State and the remaining 50% would belong to the university and could be used for investment purposes only. Besides their obvious impact on institutional autonomy, these changes provided a very important incentive towards revenue diversification. Since all academic and non-academic staff was considered as civil servants, higher education institutions faced significant restrictions regarding the management of their human resources. Thus, the possibility of hiring staff outside that regulatory straightjacket by using self-generated income (including balances from previous years) was not a negligible aspect of this enlarged financial autonomy (Teixeira & Koryakina, 2011).

In the same year, the Financial Framework for Public Higher Education (Law 113/97 of 16th September) was published. Article 3 of this law introduced a principle of complementary funding of public higher education institutions, meaning

that institutions should find additional funding sources of revenue. However, and also according to the same article, those additional revenues were not replacing public funding, but complementing it. This phrasing was aimed at critics who regarded the introduction of mechanisms of revenue diversification as a counter balance for potential decrease in public funding. The same careful wording was used regarding students' tuition fees, which were presented as an additional resource to institutional improvement and not as a replacement for declining state funding.

The Law on Financing of Higher Education passed in 2003 (Law 37/2003 of 22nd August) was even more explicit about revenue diversification. According to Article 2, one of the objectives of the higher education funding system was to motivate the search of competitive sources of funding, based on quality and excellence criteria. The principle of complementary funding was maintained in this Law and a new principle of justice was introduced. According to this principle both the State and the students had the duty to contribute to the funding of public higher education, in order to compensate for the social and individual benefits produced by it.

The major statement regarding revenue diversification was made by the Law 62/2007 of 10th September (Legal Regime of Higher Education Institutions). The Law brought about several important changes, especially concerning the governance of higher education institutions (this will be discussed in the following section). One of the main changes was the possibility of a public institution to adopt a status of a public foundation governed by private law, which required government approval. A university foundation has typically four main features: a) it is an independent legal entity; b) it has a mission (or mandate) to serve a defined public interest in higher education and research; c) as a not-for-profit public interest legal entity, it has a favourable tax treatment on its income, assets and trading activities undertaken in pursuit of the foundation goals; and d) it has the autonomy to raise funds and manage its assets. In a more extensive form the foundation status may grant the rights to: borrow and raise funds; own building, equipment and other financial assets; fully control budgets to achieve objectives;

set internal administrative and management procedures; set academic courses and evaluation procedures; employ and dismiss academic and other staff; set salaries and reward systems; set criteria and size of student enrolment; and set the level of tuition fees.

The main advantages for the institution to become a foundation are an increased institutional autonomy on financial and managerial issues, namely the possibility of borrowing money up to a certain limit, which has been denied until now to public institutions. Furthermore, although academic and non-academic staff would keep their civil service status, new contracts, including professors' contracts, could be made under non-civil service status and within an alternative pay-scale. There are also a number of potential shortcomings, which probably were the reason that held back the majority of higher education institutions from becoming foundations. For example, running a foundation requires a new set of skills that may be difficult to acquire; the transition from a public servant status to a university employee status may be seen as full of risks and uncertainties. Additionally, in order to become a public foundation, institutions had to provide evidence of their capacity to raise half of their annual revenue through sources other than government's transfer through the funding formula. Three Portuguese public higher education institutions (two public universities and one university institute) adopted the foundation regime and some of the objectives mentioned in the developmental contracts of the new foundations include the increase in private income, in the amount of foreign students and scientific production (Teixeira & Koryakina, 2011).The above discussion shows that during the past years there has been a move towards greater revenue diversification. Since the late 1990s a number of legal changes have supported this move. As Table 17 demonstrates first of all tuition fees have become an important source in revenue diversification. Their share has considerably increased over the past years. The data in Table 17 also indicates that the share of government transfers has stabilised around 70%.

Table 17 - Relative weight of different types of income of public universities 1998-2009[18]

Year	Public Transfers and Investment	Tuition Fees	Other Revenues
1998	71%	6%	23%
1999	70%	5%	25%
2000	70%	6%	24%
2001	71%	6%	23%
2002	70%	7%	23%
2003	70%	7%	23%
2004	72%	10%	18%
2005	70%	11%	19%
2006	70%	12%	18%
2007a	67%	13%	20%
2008a	67%	14%	19%
2009a	69%	15%	16%

Source: Teixeira & Koryakina (2011)

When we look at the budget structure within the public universities sector, we can find different shares of each income stream (Table 18).

[18] The values for 2007-2009 refer only to the university sector since there are no public data available for the polytechnic sector. The public transfers include some EU funds that have been managed by the National government that were aimed at investment in buildings and new equipment, which have lost relevance in recent years.

Table 18 - Structure of current budget of Portuguese public universities – 2008

University	Core public funding	Third party funding	Fees	Total Own Revenues
University of Açores	59,91%	26,64%	13,45%	40,09%
University of the Algarve	68,17%	15,30%	16,53%	31,83%
University of Aveiro	63,14%	21,55%	15,31%	36,86%
University of Beira Interior	70,32%	11,88%	17,80%	29,68%
University of Coimbra	66,30%	18,69%	15,01%	33,70%
University of Évora	69,31%	16,08%	14,61%	30,69%
University of Lisbon	71,99%	12,98%	15,03%	28,01%
University Nova of Lisbon	70,30%	16,09%	13,61%	29,70%
Technical University of Lisbon	64,35%	23,29%	12,36%	35,65%
University of Madeira	65,52%	12,02%	22,46%	34,48%
University of Minho	64,58%	21,21%	14,20%	35,42%
University of Porto	67,87%	16,37%	15,75%	32,13%
University of Trás-os-Montes and Alto Douro	68,95%	15,91%	15,14%	31,05%
ISCTE	59,82%	14,46%	25,72%	40,18%
Average	66,47%	17,32%	16,21%	33,53%

Source: Teixeira & Koryakina (2011)

This suggests that it occurred a noticeable differentiation among public universities depending on their ability to generate revenue. Therefore a study of institutional characteristics, namely, organisational structure and decision-making, and the way they influence the ability of higher education institutions to generate revenue is very important. It is especially necessary in the current financial situation which does not leave doubts that in the coming year the trend towards greater revenue diversification will continue.

4.3.4. Funding for research

Two main basic public funding categories for S&T have been implemented in Portugal since 1996, namely:

- Core funding, which corresponds to a specific allocation to R&D centres and S&T institutions (most of them at public universities) by the Portuguese Science and Technology Foundation (FCT), based on periodic evaluations (every 3 years), including two components:

    a. Basic funding in terms of number of researchers and level of evaluation;
    b. Programmatic funding, for specific actions to be defined by evaluators.

- Competitive funding, which comprises other funds, including:

    c. Individual scholarships and advanced training of human resources;
    d. Research and Development Projects;
    e. Prizes;
    f. Other funds, including funding and cooperation models.

Unfortunately, there is no single data source where public funding for research will be discriminated according to different categories. An estimation of a structure according to the four main funding modes: institutional support (basic funding), project-based funding, other funding modes (not falling into previous two categories) and targeted and thematic funding had to be worked out.

Table 19 - Government budget appropriations to research & development

	2007		2008		2009	
	Amount	**%**	**Amount**	**%**	**Amount**	**%**
Institutional support	739	58.1	807	47.4	884	47.4
Project-based funding	161	12.7	495	29.1	462	25.0
Other funding modes	277	21.8	290	17.1	323	17.4
Target and thematic funding	97	7.6	109	6.4	183	9.9
Total	1272	100	1701	100	1852	100

Unit: million Euros

Source: Godinho & Simões (2010). Authors' estimations based on GPEARI, Budget allocations to C&T and R&D 2009, and on information on the structure of FCT financial support.

Table 19 demonstrates that the great share of government appropriations is occupied by block funding to various public research entities. This type of funding is also essentially related to salaries paid to individuals in both research and higher education careers. It also includes basic funding for Associate Laboratories and research units.

Project-based funding has notably increased in the period between 2007 and 2009. Competitive funds include funding under the National Strategic Reference Framework (NSRF) 2007-2013, Community Support Framework programme and funding for research projects. Table 20 shows the increase in project-based funding by the Portuguese Science and Technology Foundation.

Table 20 - Funding of R&D projects

Year	Total	General Calls	Specific Calls
2000	9,276,944.00 €	7,366,911.00 €	1,910,033.00 €
2001	21,838,772.00 €	18,985,939.00 €	2,852,833.00 €
2002	34,391,405.00 €	30,437,561.00 €	3,953,844.00 €
2003	25,358,090.00 €	22,540,900.00 €	2,817,190.00 €
2004	25,051,672.00 €	22,166,063.00 €	2,885,609.00 €
2005	29,017,659.00 €	26,468,859.00 €	2,548,800.00 €
2006	25,969,874.00 €	23,145,033.00 €	2,824,842.00 €
2007	47,691,695.00 €	43,707,536.00 €	3,984,160.00 €
2008	61,845,411.00 €	55,519,028.00 €	6,326,383.00 €
2009	64,703,416.00 €	56,102,333.00 €	8,601,082.00 €
2010	78,965,786.00 €	70,541,113.00 €	8,424,672.00 €
Total	**424,110,723.00 €**	**376,981,276.00 €**	**47,129,447.00 €**

Source: FCT, Executive Council, 3 May, 2011.

Other funding modes relate to grants to individuals for doctoral and post-doctoral studies, as well as to the Fund for Supporting the Academic Community (FACC), which provides support mainly addressed to organisation of scientific meetings in Portugal, Edition of scientific journals, etc. Indirect funding of business R&D under SIFIDE (System of Tax Incentives for Research and Business Development) programme is also included here.

Finally, targeted and thematic funding includes funding of agreements with the American universities discussed above; funds assigned to the Agency for the Knowledge Society (Portuguese acronym – UMIC)[19]; specific research funding allocated to Ministries, etc.

To summarise, one should emphasise a significant growth of the Portuguese science and technology system, especially, the role that public universities have acquired in the past years. The increase in research funding provides universities with opportunities to capture additional funds. This also means that there is and will be increasing stratification between those universities who are capable to compete based on their research capacity and those who will be out of the competition. This is likely to deepen inequalities across the higher education system and present difficult questions to policy-making regarding its restructuring.

Another opportunity for universities is to increase funding sources from business companies. The above analysis shows that the links between these two sectors has been historically weak. Despite the dramatic growth of R&D expenditure by business sector, only 0.7% is spent on collaboration with universities (GPEARI).

[19] The Knowledge Society Agency (UMIC) is the Portuguese public agency with the mission of coordinating information society policy and its mobilization through awareness, qualification and research activities, promoting the technological development and knowledge creation by the scientific and technological system and enterprises, and fostering the development of e-Science (www.english.umic.pt).

4.4. University Governance and Organisational Structure

4.4.1. Institutional autonomy

In Section 3.1.3 we defined institutional autonomy, especially financial autonomy, as one of the prerequisites for successful revenue diversification. This section will explore the development of autonomy in Portuguese higher education.

The autonomy of the Portuguese universities is guaranteed by the Constitution of 1976. Article 76 states:

> Universities shall be autonomous in the making of their regulations and shall enjoy scientific, educational, administrative and financial autonomy, in accordance with the law, without prejudice to appropriate assessment of the quality of education.

It took twelve years until the publication of the Autonomy Law of Universities (Law 108/88 of 24th September). During this period, the right for the autonomy was exercised through publication of random laws or through a mechanism of delegation of responsibilities[20]. The problem of this system was that with the change of the Minister the previously attributed responsibilities were revoked.

Financially, the degrees of freedom of the universities were virtually non-existent. The control was performed in different ways: the budget was earmarked, any changes during the year had to be approved by the Ministers of Education and Finance; money not spent by the end of the financial year could not be carried over to the next year; it was almost impossible to transfer money for personnel to other expenses (Azevedo & Carvalho, 1998).

This situation was not satisfactory for universities and in 1979 (Decree-Law 107/79 of 2nd May) the Council of the Rectors of Portuguese Universities was created, a body which would play a significant role in developing higher education policy in

[20] It means that the Minister of Education delegated some of his/her responsibilities to the Secretary of State for Higher Education, who in turn delegated part of them to the General Director for Higher Education, who further delegated some responsibilities to the Rector of the university (Amaral & Rosa, 2004).

Portugal. The Council took the initiative to present to Parliament several projects of the autonomy law, as well as some basic principles on which it should be based (Amaral & Rosa, 2004). As a result of this effort, the Autonomy Law of Universities was approved (Law 108/88) on 24 September 1988. Under this law universities were granted almost total pedagogical autonomy. The university senate was free to initiate, modify, suspend or cancel courses. Some commentators expressed an opinion that pedagogic autonomy of higher education institutions was somewhat exaggerated and made it difficult to coordinate the system (Amaral et al., 2002; Amaral, 2008, p. 128).

Even though the Law gave universities a vast range of competences, the juridical regime treated them as public institutions with all the rigidity and bureaucracy in their administration. Thus, university administrative and financial autonomy was conditioned by laws of public administration which made it difficult for institutions to respond strategically to outside challenges (Simão et al., 2002). For example, the National Budget Law, approved every year by Parliament, introduced financial and human resources constraints to the public administration. Thus, universities could carry over the money not spent in one year to the following year, but had to spend it on personnel. Universities were also not free in hiring additional staff, because the general Law froze the admissions of personnel in public administration in 1992 (Azevedo & Carvalho, 1998).

The autonomy was increased in 1997 (Decree-Law 252/97, 26th September), in particular in matters of personnel and university buildings, which were transferred from state to university ownership, in freedom to manage earned income according to principles established by the university and to consider the money not spent from the state budget as university earned income. The Ministry reserved for itself the responsibility to define the budget, decide the questions related to investments, the number of places for higher education and the number of academic and non-academic staff for each institution.

Autonomy was also granted to public polytechnics (Law 54/90), although more limited in scope (Amaral et al., 2002). Private institutions enjoyed considerable

financial and administrative autonomy, but they were dependent on the Ministry in charge of higher education for the approval of their study programmes.

The law on university autonomy has been criticised for treating all universities the same without considering characteristics of each one, in particular, concerning their governance structure. Under this law governance was based on democratic principles, meaning almost all posts being elective by representatives of three bodies: academic staff, non-academic staff and students. Also, the degree of autonomy was not granted uniformly within the higher education system; polytechnics and private higher education institutions enjoy limited autonomy and are more dependent on the government (Conceição, 1998; Simão et al., 2002).

By granting autonomy to higher education institutions the Portuguese government tried to move from the state control to the state supervision model. However, according to various authors, the state did not quite succeed in this move. As Amaral and Carvalho (2003) note, after the passing of the autonomy laws the government was unable to adjust to its new role, the role of a supervisor of the system. To Teixeira et al (2004) the model of regulation of the Portuguese higher education system can be called “the model of state interference”, as “being unable to steer properly the system, the state recurs sporadically to extraordinary measures that attempt to force reality to conform to its wishes when the framework of institutional model does not produce the results desired by the political actors” (Teixeira et al., 2004). Some of these measures included:

- In 2002 the government facing a difficult economic situation and the need to contain the public deficit as determined by Brussels, arbitrarily froze public higher education institutions reserves accumulated from the surpluses of previous economic years;
- In 2007 due to the same budgetary constraints, it was imposed on public higher education institutions the responsibility to discount 7.5% in 2007 and 11% in 2008, 2009 for their employees to the National Pension Fund;

- According to the Law 1/2003 of January 6th, the establishment of a new higher education institution depended on the authorisation from the Ministry of Science and Higher Education. The same procedure applied to the creation of new departments and faculties in already existing institutions.

To Pedrosa and Queiró (2005), the failure of the state as the system regulator could be seen in the following areas:

- Control over the realisation of public interest;
- Adequate network of higher education institutions;
- Adequate offer of study programmes;
- Strategic planning of the system;
- Contractualisation of missions and funding objectives.

4.4.2. Internal structure and governance

Internal governance structures are likely to influence the ability of universities to interact with the external environment and obtain alternative funding. These structures can determine how easy the institution can adapt to changing circumstances by changing rules and reaching a consensus and how open it is to cooperate with the larger society.

In Portuguese universities two models of organisational structure can be found. Universities may be organised into faculties or departments with a variable degree of autonomy within the university. Organisation into faculties is mainly characteristic of continental Europe. Faculties combine various disciplines and have professional logic, i.e. train for a certain profession. Organisation into departments is more characteristic of the British model, exported later to the U.S. Departments (sometimes called schools), which are formed around different areas of knowledge, rather than professions. While each faculty has its own teaching

staff to teach a certain course, in the departmental organisation courses are taught by staff from different departments. Thus, a professor of biochemistry department would give courses to students from biology, chemistry, medicine, veterinary and pharmacy.

In Portugal, traditional universities (the University of Coimbra, the University of Porto, and the University of Lisbon, for example) are organised according to the continental model, i.e. into faculties. Modern universities, founded in 1973 and after, in general adopted departmental model. Typical departmental universities are the University of Aveiro, Trás-os-Montes e Alto Douro, Açores and Madeira.

It the context of change when universities are faced with different challenges the departmental structure is considered to be more flexible in various aspects. Advantages of the departmental organisation are seen in a greater coherence between teaching and research, economic advantage, organisational flexibility, modular nature of teaching and favourable environment for collaboration (Costa, 2001).

In terms of internal governance, until very recently, it followed a typical collegial model (see Section 2.1.2). According to Autonomy Law of 24th September 1988, university governance had to follow democratic methods, i.e. participation of democratically elected academic and non-academic staff and students in university governance. Governance bodies of a university used to be composed by a rector, university assembly, university senate and administrative council. The highest body, University Assembly, was composed by 40% academic staff, 40% students and 20% other staff. The function of the University Assembly was to elect rector and approve university statutes. The senate had a similar composition and was responsible for strategic university management. Administrative Council oversaw administrative, financial and real estate management. The Autonomy Law allowed for participation of external stakeholders in the university governance structures at the proportion of 15% of the total number of members. However, this participation was not obligatory and external member were not present in all universities. As a rule, older universities did not include external stakeholders in

their senates. Most universities created “Advisory Committees” with participation of external members, but without decision capacity. In general such bodies seldom met and had little influence in institutional strategies (Ministry of Science, 2006).

The governance of university’s units (Faculties, Schools, Institutes or, in some cases, Departments) included the Assembly of Representatives, the Directive Council, the Pedagogic Council and the Scientific Council (or a Pedagogical-Scientific Council). The law did not preclude the existence of a Dean, but the most frequent situation was having different Presidents for several bodies (the unit was then represented by the President of the Directive Council), which could lead to conflict due to some overlap of competences.

In the late 1990s, pressures on higher education institutions to connect with the external environment become more prominent. These pressures were accompanied by an increasing criticism of the collegial forms of institutional governance and management, namely the following (Ministry of Science, 2006):

- The lack of external orientation and advice, but above all of accountability facing external bodies. The autonomy law does not allow for external participation in the University Assembly, which elects the Rector from within the full professors of the University, in the form of an internal process. External participation in the administrative Council is also inexistent;
- The limited role of pedagogical councils and the related passive participation of students, namely in educational/ pedagogical planning and supervision;
- The large dimension of most of the collegiate bodies (Simão et al., 2002): the number of members of the University Assembly in the 14 Public Universities in 2002 varied between 64 and 331, while the number of members of University Senates ranged from 36 to 179;
- The predominance of the collegiate approach in the university management leads to slow and cumbersome decision-making processes and a diffusion of personal responsibilities. Decision making tends to be corporative,

lacking clarity and transparency, which does not contribute to the necessary institutional cohesion;

- Leadership is not favoured and strategic planning is not a common tool for institutional development.

These concerns translated into series of reforms during the past 5 years, which will be described in the following section.

4.5. Recent Governance Reforms

As it can be seen, Portugal is not a stranger to higher education reforms. Portuguese government and international organisations have collaborated several times during the past 40 years to prepare higher education reforms. It can be argued that various governments used international institutions like the World Bank and the OECD to "legitimise and give certain credibility to certain national policy options" (Teixeira et al., 2003). In 2005 the government that came to power asked the OECD to evaluate the Portuguese higher education system and related national policies, the European Association for Quality Assurance in Higher Education (ENQA) to evaluate the national evaluation system and the European University Association (EUA) to conduct individual institutional evaluations, both public and private. The reports were used to prepare a reform of higher education. The years 2006 and 2007 were remarkable for their legislative production. Decree Law 74/2006 of March 24th put in place a framework for implementing the Bologna process: Law 38/2007of August 16th set the legal framework for quality assurance of higher education (RJAES) and by the Decree 369/2007 the Agency for Evaluation and Accreditation of Higher Education was established; in September of 2007 Law 62/2007 a new legal framework for all higher education institutions was promulgated.

Following the OECD report of December 2006 and its recommendations a reform of the legal-juridical system of higher education was prepared and subsequently approved by the Parliament in the autumn of 2007. The new Legal Regime of

Higher Education Institutions (RJIES acronym in Portuguese) is applicable to the whole system: private and public, universities and polytechnics.

The new Legal Regime of Higher Education Institutions proposed the following changes:

- Diversity of governance systems and increased autonomy;
- Setting up governing boards with external participation;
- Possibility of independent legal status for public institutions: namely as public foundations governed by private law;
- Establishment of consortia among institutions;
- Recognition of research centres as part of the university management framework.

New governance bodies proposed by this law were: the General Council composed of 15-35 members with 30% external participation, 15% student representation and 55% academic staff; the Rector, elected by the General Council; and the Management Council. The law also allowed for the creation of other consultative bodies, for example, the University Senate.

The governance structure at lower levels was also modified. At this lower level there is also a tendency of concentration of power within the executive power (faculty deans and heads of departments), with reduced power for the remaining bodies (pedagogic and scientific councils). There is also the possibility of including external stakeholders in the main governing body and electing a dean external to the unit.

In general, the new regulations are characterised by replacing collective decision making by centralisation of power in individual decision-makers. Another major change has been the reduction of the size of the main decision bodies (both at the central and lower levels). The new rules also reduced the size of the student participation and increased the participation of the outside community in institutional governance (making it compulsory in the central government body of each higher education institution).

By October 2008, higher education institutions had to submit new statutes accounting for the changes to the Ministry of Science, Technology and Higher Education. This was followed by the elections to the General Council and to the Rector in most cases, and the elections of heads of departments and faculty deans.

The new legal regime also gave an opportunity for higher education institutions to transform themselves into public foundations governed by public law, if they met certain conditions. Three public higher education institutions, the University of Porto, the University of Aveiro and ISCTE became foundations in 2009.

4.6. Summary of the Chapter

Over the past thirty years, the Portuguese higher education system has experienced several significant changes. The expansion and diversification of the system that occurred through the creation of various public universities and polytechnics as well as private institutions is one of them. However, while at the beginning of the expansion Portugal enjoyed quite a favourable economic climate, from the turn of the century the financial context changed, putting some serious pressure on public support of higher education.

Several attempts have been made by the government to reform the way higher education institutions are funded. These included an attempt of contractual funding in 1997, changes to output-based criteria in a funding formula in 2003 and introduction of variable tuition fees in 2003. Unfortunately, all the attempts fell short of bringing real changes to the funding system, creating a climate of mistrust of university leaders towards government. Since 2007 the situation aggravated even further due to the international economic crisis.

During the same period of time the growth of the science and technology system could be observed. Portugal has made a great effort to bridge the gap with other European countries in terms of scientific development. However, as described in Section 4.2 despite positive developments on the input side (increase in the

number of researchers and public investment in R&D), the knowledge spill out and cooperation between universities and business firms is not yet significant.

Another important development that took place in the past fifteen years is the increase in cost-sharing through greater contribution of students and their families to the costs of higher education (Section 4.3.2).

The Portuguese governance system (before RJIES), according to Clark's classification, followed a typical continental model, where state bureaucrats and academics hold the power in system coordination. Governance shifts that occurred in the past years moved in the direction away from state control and more to the state supervision model, which accompanies European trends. However, the Portuguese government showed a rather weak capacity in a supervising role and developed a model of state interference which is characterised by taking crisis measures instead of planning and coordinating strategically the system. As a result of a weak regulation many reforms of the 1980s and 1990s were not followed through and did not bring the expected outcomes. The new reforms of 2007 are still quite recent to be evaluated.

How do these and other changes described in the chapter influence the ability of higher education institutions to generate additional income? In Section 3.1.3 we established several prerequisites for successful income diversification: autonomy, legal framework, the existence of incentives and an entrepreneurial outlook. This chapter presented system level changes regarding autonomy and the legal framework. The legal changes during the past twenty years have created a more favourable context for revenue diversification by enhancing autonomy, increasing cost-sharing and changing internal management arrangements. There also have been government initiatives, albeit criticised for the lack of continuity, in the direction of knowledge transfer and university-business cooperation.

After having looked at conditions for revenue diversification at system level, it is important to study the impact of revenue diversification within institutions, which will be done in Chapters 6 and 7. However, before turning to our empirical study, the next chapter will present the research design.

CHAPTER 5 - METHODOLOGICAL CONSIDERATIONS

5.1. Objectives of the Study

The literature review (*Chapters 1 and 2*) has shown that higher education institutions worldwide are experiencing drastic changes due to common pressures and international trends. We established that public funding of higher education is currently under great pressure and therefore complementary funding schemes and alternative mechanisms are being implemented and encouraged by policy-makers. These mechanisms usually include a mix of public and private funding. To understand rationales behind these developments, we turned to economic theories of public and private support for higher education and then presented funding mechanisms of distributing resources from these two sources.

Chapter 2 focused on system and institutional governance arrangements and changes that took place in recent years. We demonstrated that the shifts in governance have created a different institutional environment for universities in terms of new rules, norms and values. Organisational adaptation to this new reality can be explained using two complementing theoretical frameworks: resource dependence and institutional theories.

Chapter 3 presented the phenomenon of revenue diversification, which relates to generation of additional to public core budget revenue through both public and private sources. The complexity of the phenomenon lies in the fact that it develops on the boundary between academic and business culture. *Chapter* 3 also looked at new organisational forms that emerged as a response to financial environment's changes, namely, the forms that are facilitating to revenue diversification.

Thus, in the first three chapters we outlined the boundaries of revenue diversification phenomenon, both from the point of view of funding and governance.

As *Chapter 4* has demonstrated, higher education institutions in Portugal are no strangers to reform. During 2006-2007 the Portuguese government prepared and implemented demanding and profound reforms that had as their objective to modernise the Portuguese higher education system. These reforms were supported by the recommendations by a series of reviews commissioned by the ministry to the

OECD (System Review), ENQA (Quality Assurance System), and EUA (Institutional Evaluations). The essence of the reforms considers greater quality, greater relevance, greater international recognition, a more advanced, diversified and responsible system of autonomy, and greater openness to society and to new social groups of students (Laws 38/2007, 62/2007). It is in line with the current European movement to modernise universities and polytechnics to support the development of knowledge societies and economies (OECD, 2008a). It seems that the Portuguese government is committed to bring the national education system to high standards of excellence in teaching and research. However, it is common knowledge that excellence in teaching and research cannot be achieved without financial stability and good financial management (Shattock, 2003). The literature review (Chapters 1 and 2) leads us to the conclusion that despite the governments' commitment at the European level in general, and in Portugal in particular, to support higher learning and research, it is difficult to ensure that the totality of this support will come from the public purse. This is one of the reasons why policies encouraging cost-sharing and public-private partnerships are being introduced. We assume that changes in funding arrangements induced by government are influencing higher education institutions and their basic units and would like to understand how these processes work.

The study pursues two main goals. First goal is to analyse the issue of revenue diversification in Portuguese higher education institutions. The information is quite scarce and the phenomenon per se is quite recent in the European context, which presents a certain challenge for the researcher. Second, the study will aim at looking at institutional responses to the need to raise non-government income in terms of governance and management. The intermediary goals are to present an overview of the issues and challenges facing higher education institutions' leaders, in their quest to ensure financial stability, and try to identify the relationship between external and internal influences on institutional ability to generate additional revenue.

5.2. Conceptual Framework

This study understands revenue diversification as the generation of additional income from both existing and new funding sources from both public and private

sources. The decision to include all types of additional income, even from government sources, was based on two main factors. First, our objective is to present a full scope of activities that universities undertake in order to diversify their revenue. Second, third mission activities represent a small fraction of institutional budgets and in order to make a study of only this type of activities we would have to significantly increase our sample or change the methodological approach, which under the circumstances was not possible. Therefore, the study focuses on all forms of revenue generation and from all sources.

In this study we assume that the ability to generate revenue is linked to both external and internal environment (Shattock, 2008). Environmental or external influences include the country's legislative regime regarding financing, governance and autonomy of higher education institutions and local context, meaning socio-economic characteristics of the region where higher education institution is situated, relationships with regional authorities, market pressures on courses offerings, etc. Economic circumstances of the country are also an important external factor.

We also believe that the university internal structure plays an important role in institutional ability of revenue generation. The two most important functions of internal structure are governance and management. Governance refers to the structure and processes of decision making, while management refers to the structure and processes for implementing or executing these decisions (Chapter 2).

Schematically the relationship between revenue diversification activities and external and internal influences can be presented in the following way (Figure 11):

Figure 11 - The relationship between revenue diversification and external and internal environment

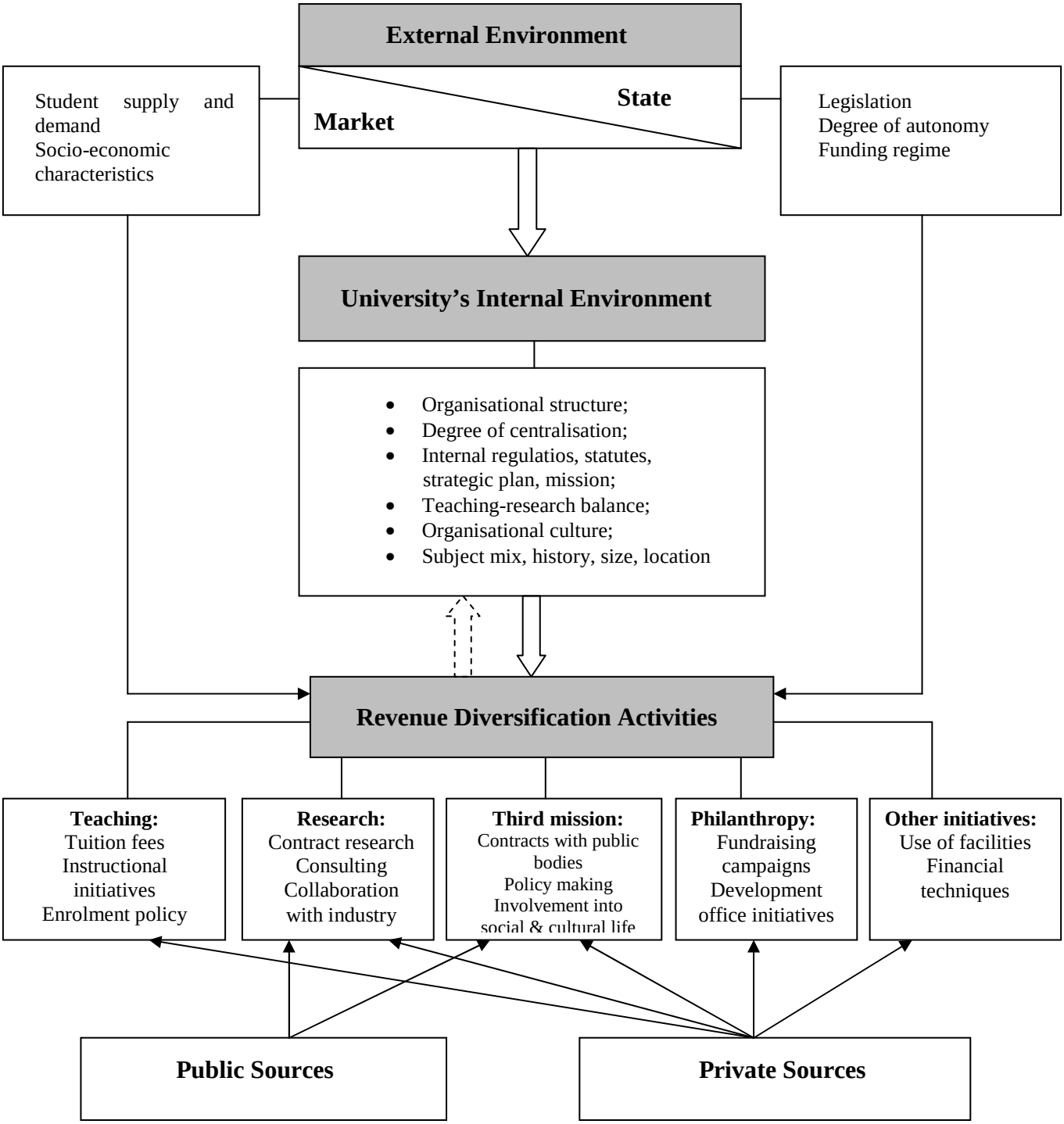


Figure 11 represents the conceptual framework of the study. It shows that the main research subject – revenue diversification – is closely related to other issues, namely to the external environment and to internal characteristics of a particular university. In Chapter 4 we examined national features such as the configuration of the funding system and governance arrangements at the system as well as at the institutional level. The importance of the internal organisation and its influence on the ability to raise additional revenue was addressed in Chapter 3. Figure 11 also reflects our assumption that the need to diversify income sources may have implications for the university's organisational structure, governance and management practices.

The study is a multilevel analysis. We distinguished the levels using the model of higher education system by Becher and Kogan (1992). They distinguish four levels and two modes within the higher education system. The levels are: individual, basic unit, institution and central authority. The modes relate to collective and individual values, aspirations and loyalties on the one hand (normative mode), and job requirements or business of carrying out practical tasks at different levels of the system (operational mode), on the other. Using this terminology, our study is concerned more with the levels of basic unit and institution, though not ignoring the other two; and with an operational mode. We are aware that the two modes are interconnected and are inseparable in practice; however, each has distinct characteristics, which allows us to concentrate on the question of what people actually do to generate extra income, or what they are required to do by the institution.

The macro level was covered in the chapter on the national context. In this chapter we showed changes in funding and governance arrangements in Portugal. We also touched upon the normative dimension by describing the objectives the government sets for higher education. From the late 1970s and up till the 1990s the objectives were clearly the expansion of the system and widening of access. From the beginning of this century the priorities shifted to quality concerns, valorisation of research and participation in regional and national economic development among others. The understanding of what is going on at the macro level is very important because it enables or constrains the actions at the institutional and basic unit levels.

The second level is the institution. The academic institution is the principal legal entity through which most functions of higher education are performed. It is the body that authoritatively holds together a group of basic units (Becher & Kogan, 1992). The relationship of basic units and individuals to institution has been described as complex and ambiguous. Academic institutions have been called “organised anarchies”, “professional bureaucracies” (Mintzberg, 1979), and “loose-coupled systems” (Weick, 1976). Traditionally, university central administration in the “continental mode” was described as rather weak as opposed to greater authority of the state bureaucracy and academic guild (Clark, 1983). The changes in governance manifested through devolving of more responsibilities to the institutions and funding pressures have shifted authority towards the institutional leadership. It means stronger management, the writing of strategic plans or the development contracts for funding, student recruitment policy, internationalisation policies, etc.

For the study of revenue generation activities, institutional level is important because it has the maximum power to develop organisational forms, maintain the institution, ensure its financial stability and set the priorities.

Finally, we would like to study the phenomenon of revenue diversification at the basic unit level. We adopt the definition of a basic unit suggested by Becher and Kogan (1992):

> By basic units we mean the smallest component elements which have a corporate life of their own. Their identifying characteristics would normally include an administrative existence; a physical existence (an identifiable set of premises); and an academic existence (a range of undergraduate training programmes, usually some provision for graduate work and sometimes a collective research activity).

In our study basic units are individual departments or faculties where there are no administratively independent sub-units. Where faculties are comprised of different subject-based departments, we were interested in a common strategy for revenue diversification that exists at the faculty level.

Our study is mainly focused on changes in the operational mode of the institutions in response to challenges from the external environment. However, we are aware that success and stability of these arrangements depend considerably on how far institutional norms are modified to match the resulting operational procedures (Becher & Kogan, 1992). For example, science parks or technology transfer offices can be established but unless there is a change in the research emphasis on the part of individual departments, these arrangements can prove to be largely symbolic and nominal ones (ibid.).

5.3. General Assumptions and Research Questions

The broader question that the study would like to address is the question of change and adaptability of higher education organisations and their structures. Within this wider topic we are interested in higher education institutions' responses to the challenges of the financial environment, namely the need to raise extra revenue, and in how external and internal forces influence their ability to do so. We operationalise institutional responses through the creation and implementation of strategies regarding to organisational structures and processes. The neo-institutional theory (DiMaggio & Powell, 1983) and resource dependence theory (Pfeffer & Salancik, 1978) dealt with in Chapter 2 inform our analysis of these broader issues. Both resource dependence theory and neo-institutional theory suggest that organisational responses are to some extent shaped by the environment with which the organisation interacts.

Because revenue generation in most European universities is a relatively new phenomenon and there is no developed theory about this subject, the study begins with some broad assumptions derived from existing literature and shown in the conceptual framework (Clark, 1998; Shattock, 2003; Sporn, 1999; Williams, 1992):

- State funding of public higher education institutions seems to be insufficient to the demands modern society puts on them. Therefore, universities are forced to look for other sources of income, or even encouraged to do so;

- The need to raise additional funding may have significant implications for governance and organisational structure, as well as for the management practices of the universities.

These two assumptions lead to a number of propositions prompted by the literature review (Chapters 1 and 2):

a) The more autonomy from the State higher education institutions have, the greater their capacity to raise extra revenue (Shattock, 2008);

b) The location, size, age and prestige influence (though there are no direct links) the ability of higher education institutions to generate third-stream revenue (Clark, 1998);

c) The more research intensive a higher education institution is, the greater is its ability to raise extra income (Slaughter & Leslie, 1997);

d) The less time-consuming and bureaucratic the decision-making is, the faster the response of higher education institutions to financial opportunities (Shattock, 2003; B. Sporn, 2003);

e) Higher education governance with external participation stimulates revenue generating activities;

f) Centralised decision-making is favourable for consolidating higher education institution's potential for revenue diversification (Bleiklie & Kogan, 2007; Clark, 1998; Williams, 1992);

g) Professionalisation of management, especially in areas of third mission activities, is seen as crucial for successful implementation of revenue diversifying strategies (Shattock, 2003; B. Sporn, 2003).

Given the above mentioned assumptions and propositions, two main research questions guided our study.

In view of the scarceness of empirical material about revenue generating activities of higher education institutions in Portugal, the first research question is aimed at

finding out what higher education institutions do to attract extra income and what sources prevail. This question can be formulated as:

Question 1: How do universities raise extra income (income beyond state operational grant)?

The following sub-questions are aimed at further clarification of the revenue diversification phenomenon:

- *What are the priorities of revenue diversification? What are the strategies?*
- *What are the main sources?*
- *What are the incentives and constraints for revenue generation activities?*
- *What are the difficulties in managing these activities?*

The previous studies of American and European universities suggest that universities change or adapt their internal structures and organisation in order to stay competitive in the changing external environment. For example, Clark (1998) identifies five constituents of transformation; Sporn (1999) describes adaptive university structures, Shattock (2003) speaks about successful university management. Changes in funding are present in all these studies as a component of the changing environment in which higher education institutions operate. Following this rationale our second research question is:

Question 2: How are universities' processes and structures influenced by the need to generate additional income?

Though governance structures of Portuguese higher education institution are regulated by law (currently Law 62/2007), each institution has autonomy to interpret the law and devise its own statutes where governing bodies are stipulated. Therefore, the sub-questions to be answered are:

- *How the need to generate additional revenue influences governing and organisational structure?*
- *How does it affect processes?*

In question two we deliberately omit such words as “adaptation”, “change” or “transformation” of university structures and processes as the goal of this question is precisely to find out if any transformation or adaptation has taken place in Portuguese universities.

By organisational structure we understand the combination of academic and non-academic units, their hierarchy, the decision-making structure, the relationship between teaching and research and discipline/programme mix. By processes we mean decision-making processes, communication processes, budgeting, and recruitment (Chapter 2).

The following sections will attempt to justify the methodological approach and tools adopted for answering the above research questions.

5.4. Research Design

This section will describe and justify the methodology to be used for this study. It begins with broader philosophical issues of social reality conceptions. Then it proceeds with the reasons for selection of a qualitative methodology for addressing the research problems and questions, namely a case study format. It also outlines the methods of data collection: the use of interviews, documents and direct observation. Data analysis strategies are addressed further, including the justification for the use of computer software NVivo8 for data coding and analysing. Issues of validity and reliability of data and findings are considered. Finally, the categories resulted from data analysis are presented.

5.4.1. The choice of methods

It has been argued that the choice of methodology is determined by the researcher’s conception of social reality and of individual and social behaviour (Cohen & Manion, 1994) or, in other words, on the researcher’s paradigm. This position presupposes

that adherence to a certain scientific paradigm predetermines the choice of methods a researcher uses in his inquiry. However, this view can be challenged by arguing that “routine ways of thinking and paradigmatic blinders constrain methodological flexibility and creativity by locking researchers into unconscious patterns of perception and behaviour that disguise the biased, predetermined nature of their methods ‘decisions’” (Patton, 1990, p. p. 38).

The paradigmatic debate stems from a long-standing debate among the philosophers of science over how best to study and understand the world and what the nature of reality is. This debate used to take the form of qualitative versus quantitative methods, or logical positivism versus phenomenology. However, during the course of various reflections about the nature of scientific inquiry its social nature has been emphasised (Kuhn, 1970). The rationality of scientific knowledge in its positivistic sense has been challenged which led to the rethinking of traditional concepts of science and gave more legitimacy to qualitative methods of scientific research. In recent years the focus of the debate has shifted from the dualistic antagonism to the question of how to combine the strengths of each method in a multi-method approach to research. Although a philosophical debate on epistemological issues is far from being the goal of this work, we find it useful to set the boundaries for our investigation. We do not subscribe to the positivists’ position that a researcher is an objective and an impartial observer of the reality *out there* driven by immutable natural laws (Guba, 1990). We equally oppose an extreme relativist position according to which any theory is as good as another, that it is all a matter of opinion or all a matter of our subjective wishes (Chalmers, 1983). In our point of view social reality is ever changing and what might be true or approximately true at one period of time ceases to be so at another. Therefore, in this question we are closer to the American pragmatist position: truth is what works in the solution of concrete problems and furthers or enhances human life (Hands, 2001).

Pragmatism emphasises methodological appropriateness as the primary criterion for judging methodological quality. The choice between quantitative and qualitative methods depends on the primacy of emphasis, which “depends only on the circumstances of research, on the interests and training of the researcher, and on the

kinds of material needed for theory (...). In many instances both forms of data are necessary." (Glaser & Strauss, 1967).

The purpose of our research which is aimed at an in depth rather than an extensive analysis and the nature of our research questions led us to the choice of predominantly qualitative methods for data collection and analysis. This choice is seen to be the most appropriate in light of the complexity of the study, diverse nature of the data and different institutional contexts.

Qualitative research has become increasingly popular in the past two decades. It has ceased to be the prerogative of some fields like anthropology, history or political science, and is used by more researchers in basic and applied fields, namely sociology, public administration, organisational studies, educational research, etc. (Denzin & Lincoln, 1994; Miles & Huberman, 1994). Qualitative research may be conducted in a number of ways but there are some recurring features that can be found in most qualitative inquiry (Miles & Huberman, 1994):

- Qualitative research is conducted through an intense and/or prolonged contact with a "field" or life situation;
- The researcher's role is to gain a "holistic" overview of the context under study: its logic, its arrangements, its explicit and implicit rules;
- The researcher attempts to capture data on the perceptions of local actors "from the inside" through a process of deep attentiveness, and of suspending preconceptions about the topics under discussion;
- A main task is to explicate the ways people in particular settings come to understand, account for, take action, and otherwise manage their day-to-day situations;
- Most analysis is done with words. They can be organised to permit the researcher to contrast, compare, analyse, and bestow patterns upon them.

Generalising the above-mentioned characteristics, leading qualitative research experts offer the following definition of a qualitative research (Denzin & Lincoln, 1994, p. 2):

> Qualitative research is multi-method in focus, involving an interpretive, naturalistic approach to its subject matter. This means that a qualitative researcher studies things in their natural settings, attempting to make sense of, or interpret¸ phenomena in terms of the meanings people bring to them. Qualitative research involves the studied use of a variety of empirical materials that describe routine and problematic moments and meanings in individuals' lives.

The strength of qualitative data is that they focus on naturally occurring events in natural settings, they focus on a specific *case,* the influences of the local context are taken into account and they give a researcher a strong possibility for understanding latent, underlying, or unobvious issues. Another important feature of qualitative data is their *richness and holism,* with strong potential for revealing complexity (Miles & Huberman, 1994). It has also been noted that qualitative data are best used for discovery, exploring a new area, developing hypothesis. All the above-mentioned features have relevance for the present study which is aimed at exploring a revenue diversification phenomenon, as well as the complex processes of change within institutions.

Qualitative methods like quantitative ones have a number of limitations that the researcher has to be aware of. Major difficulties associated with qualitative research lie in the analysis and interpretation of the data, or in its objectivity. And though the tools for qualitative data analysis have advanced over the past years, the problem of confidence in findings has not gone away (Miles & Huberman, 1994). One way to overcome this difficulty is the use of explicit, systematic methods in collecting and analysing data, methods that are "credible, dependable, and replicable in *qualitative* terms" (ibid.). Guba and Lincoln (1994) proposed four criteria for judging the soundness of qualitative research and explicitly offered these as an alternative to more traditional quantitatively-oriented criteria. They felt that their four criteria better reflected the underlying assumptions involved in much qualitative research. They are:

credibility, transferability, dependability and confirmability. The credibility criteria involve establishing that the results of qualitative research are credible or believable from the perspective of the participant in the research. Transferability refers to the degree to which the results of qualitative research can be generalized or transferred to other contexts or settings. The idea of dependability emphasizes the need for the researcher to account for the ever-changing context within which research occurs. The research is responsible for describing the changes that occur in the setting and how these changes affected the way the research approached the study. Confirmability refers to the degree to which the results could be confirmed or corroborated by others.

5.4.2. Justification for the use of case studies

A case study approach has been widely used in social science research either to develop theory (i.e. exploratory design), to test theory (i.e. explanatory design), or to provide descriptions (descriptive design). In general, case studies are appropriate when a researcher seeks answers to “how” and “why” questions about a contemporary set of events, over which he has little or no control (Yin, 2003). As it has been mentioned above, the underdeveloped state of the field calls for a more explorative and descriptive research (“how” questions), as well as for an attempt to reveal some linkages between different factors influencing the ability to generate revenue (explanatory research). Case study research requires selecting a few examples of the phenomenon to be studied and then intensively investigating the characteristics of those examples (“cases”). By closely examining a relatively small number of cases, and comparing and contrasting them, the researcher learns about significant features of the phenomenon and how it varies under different circumstances. Case study research is particularly well suited to investigating processes (Yin, 2003).

A multiple-case study design with two cases will be used as “multiple cases offer the researcher an even deeper understanding of processes and outcomes of cases, the chance to test (not just develop) hypotheses, and a good picture of locally grounded causality” (Miles & Huberman, 1994). Because the multiple-case study may require

extensive resources and time we have chosen to conduct two institutional cases. According to Yin (2003) “even if you can only do a “two-case” case study, your chances of doing a good case study are better than using a single-case design”. Direct replications and analytic conclusions from two cases will be more powerful than those coming from a single case (ibid.). In a multiple-case design each case study consists of a “whole” study where convergent evidence is sought regarding the facts and conclusions for the case. Each case’s conclusions need to be replicated by other individual cases.

Replication is a fundamental characteristic of multiple-case studies. Each case either predicts similar results (a literal replication) or predicts contrasting results but for similar reasons (a theoretical replication). An important condition for replication is the development of a rich theoretical framework, which later becomes the means for generalising to new cases (Yin, 2003).

As it has been mentioned earlier, case studies can be used for developing new theory, an aspect that has been explored by Eisenhardt (1989). Combining the case study method with the grounded theory (Glaser & Strauss, 1967) approach, Eisenhardt shows the potential of case studies for theory building. It seems relevant to incorporate some features of this blended approach into our research design as we are looking for not only confirming the propositions derived from the literature review but also for discovering new ones for further empirical investigation. Strengths of building theories from case study research include the likelihood of generating novel theory and the likelihood of this theory to be testable and empirically valid.

A striking feature of this approach is the frequent overlap of data analysis with data collection (the constant comparative method of grounded theory). This allows the researcher to take advantage of flexible data collection which gives freedom to make adjustments during the data collection process. These adjustments allow the researcher to probe emergent themes or to take advantage of special opportunities (Eisenhardt, 1989). The emergent frame is systematically compared with evidence from each case in order to verify its fitness with case data. Hypotheses are shaped through a process of sharpening the constructs, building evidence which measures

the construct in each case and verifying the fitness of emergent relationship with the evidence in each case. Another distinctive feature is the comparison of the emergent concepts with the existing literature. This involves both confirming and contrasting findings (ibid.).

To sum it up, a case study approach as well as its particular use for theory building seems to be the most appropriate method to choose for the purposes of this study which aims at investigating a new problem within the complexity of the organisational environment.

5.4.3. Sampling: the choice of cases and respondents

Sampling for qualitative studies possesses some distinct features: it tends to be purposive, rather than random; it can evolve during the fieldwork; it is often theory-driven, either up-front or progressively. The purpose of probability sampling is generalisation to a larger population, while the aim of purposeful sampling is to select information-rich cases whose study will illuminate the questions under study. The goal of this research is not to generalise from our cases to a larger population but to study the phenomenon in depth by purposefully selecting a few cases. As to the size, it "depends on what you want to know, the purpose of the inquiry, what's at stake, what will be useful, what will have credibility, and what can be done with available time and resources" (Patton, 1990).

For the choice of two cases a combination of convenience and purposive sampling techniques has been applied. The advantages of using more than one qualitative sampling strategy are flexibility, potential contribution to triangulation of perspectives, and the ability to meet multiple needs and interests (Patton, 1990).

The fact that the present study is conducted within a doctoral project puts certain constraints on the researcher's time and resources. Convenience sampling helps to save time, money and effort. Therefore, the choice of cases was influenced by geographical proximity and the ease of gaining access to institutions. At the same time, within possible combinations of institutions answering the above requirements, the two were selected based on some distinct characteristics (purposive sampling).

Both higher education institutions are public. It has been decided to concentrate our focus on public higher education institutions, universities in particular, because traditionally they almost fully relied on government funding and revenue diversification presents for them a new domain. Public universities also attract the majority of students and have greater intensity of research. This sampling technique facilitates comparisons between cases by controlling for some external characteristics, such as age, size, and institution type. Simultaneously, the institutions possess different organisational structures, one being organised in faculties further subdivided into departments; the other has a departmental structure. We believe that this structural heterogeneity will permit us to obtain diversified responses and thus draw a richer picture of revenue diversification practices.

The choice of the respondents within each institution was guided by the objectives of the study: to analyse the issue of revenue diversification and its impact on university governance and organisational structure and management. Following the logic of purposive sampling, we have chosen the respondents, who would possess sufficient knowledge about revenue diversification, participate in decision-making at the institutional level and be in charge of some areas that generate extra income. One important feature of a within-case sampling is that it has an iterative quality, meaning that sampling decisions are made at each step of data collection process – documents, observations and informants lead us to new samples of documents, observations and informants (ibid.: 29).

Within each institution we identified two levels of analysis: central administration and middle management. This division was dictated by the purpose of the study which is to try to give an in depth analysis of the phenomenon of revenue diversification and how it is manifested at different levels of the organisational structure. We believe that institutional actors occupying different positions within the institution and having different decision power and involvement with institutional day-to-day operations will present diverse accounts on what revenue diversification is. Moreover, we decided to concentrate on an institutional perspective of revenue diversification and the way this process is seen by academic managers and central administration.

At the central administration level at both institutions, we have chosen to interview first of all the Rector and the Administrator, as the highest officers responsible for institutional development. Both rectors were unavailable for interview and the highest responsible for the institution was therefore an Administrator. From the Rector's team we have chosen the officers responsible for some of the following areas. At the University of Aveiro the following interviews were conducted:

- Administrator;
- Administrator of Social Services;
- Ex-Rector;
- Vice-Rector responsible for the strategic planning, information management and quality;
- Vice-Rector for research and post-graduate education;
- Vice-Rector responsible for the university-society cooperation, innovation and technology transfer;
- Pro-Rector responsible for the regional development.

At the University of Lisbon:

- Administrator;
- Vice-Rector responsible for internationalisation and external relations;
- Vice-Rector for academic affairs, sport and culture activities;
- Rector's chief of cabinet.

The difference in the number of the interviewees at the top management level is explained by a difficulty in obtaining interviews at the University of Lisbon.

At the middle management level we chose to interview Presidents of the Directive Councils of faculties, departments and schools as ones who are in charge of their academic unit's "survival" and can best provide the information required. In the choice of the faculties, departments and schools we tried to show how the phenomenon of revenue diversification is revealed in different settings and under different circumstances. Therefore we tried to achieve the most diverse representation of academic units: old and new; large and small; in pure and

applied sciences, in hard and soft sciences. The “age” of each unit was determined by the date of its creation, the information obtained through a web site or institutional documentation. The criterion for the “size” was the number of academics at each unit. The classification of scientific disciplines into pure/applied and soft/hard was borrowed from Biglan (1973). We omitted his distinction between life and non-life sciences as being irrelevant for our purposes. We believe that this mix of basic units will potentially cover as many extensions for revenue diversification as possible: research, instructional initiatives, industrial collaboration, and service provision. At this level we also included interface units, which serve to promote and facilitate cooperation with society.

Table 21 - Selected departments at UA

Departments, Autonomous Units and Polytechnic Schools	
Arts and Communications Department	Large, new, applied, soft
Electronics, Telecommunications and Informatics Department	Large, old, applied, hard
Languages and Cultures Department	Large, old, applied, soft
Chemistry Department	Large, old, pure, hard
Mechanical Engineering Department	Small, new, applied, hard
Department of Geosciences	Small, old, pure, hard
Autonomous Unit of Social, Juridical and Political Sciences	Small, new, applied, soft
Technology and Management School	Large, new, applied, hard/soft
Interface Units	
Technology Transfer Unit	

The University of Lisbon has a different organisational structure from that of the University of Aveiro. It is subdivided into faculties and faculty-like institutes some of which are further subdivided into departments.

Table 22 - Selected faculties at UL

Faculties	
The Faculty of Sciences	Large, old, basic and applied, hard
The Faculty of Arts and Humanities	Large, old, basic and applied, soft
The Faculty of Dental Medicine	Small, old, applied, hard and soft
The Faculty of Fine Arts	Large, old, basic and applied, soft
Institute of Geography and Territorial Planning	Small, new, applied, soft
Social Sciences Institute	Small, new, applied, soft
Interface Units	
Technology Transfer Unit	

5.5. Data Collection

Data collection was guided by the objectives of the study and research questions. Data collection techniques combined documentary analysis, direct observation and semi-structured interviews. This mixed data collection approach allowed for triangulation of data within each case study.

The interview is one of the most important sources of case study information (Yin, 2003). Interviews are a key data collection technique of this study, which is focused on understanding the meanings its participants construct about their organisation, its structures, systems and processes. The research interview has been defined as:

> A two-person conversation initiated by the interviewer for the specific purpose of obtaining research-relevant information, and focused by him on content specified by research objectives of systematic description, prediction, or explanation (Cannell and Kahn, 1968 cited in Cohen and Manion, 1994).

As a research technique of data collection, the interview serves three purposes. First, it may be used as the means of gathering information. Second, it can serve to test hypothesis or to suggest new ones; or it helps to identify variables and relationships. And finally, the interview may be used to complement other methods by validating them (Cohen & Manion, 1994).

Keeping in mind the above-mentioned characteristics and taking into consideration a specific character of our object of study, we chose semi-structured interviews as a data collection technique. Semi-structured interviews are conducted with a fairly open framework which allows for focused, conversational, two-way communication. We chose open-ended questions which are believed to possess a number of advantages: they are flexible; they allow the interviewer to probe for deeper understanding of a phenomenon or to clear up any misunderstanding; they enable the interviewer to test the limits of a respondent's knowledge, they promote cooperation and help to establish rapport; and they allow for a more accurate assessment of what the respondent really believes (Cohen & Manion, 1994).

Some problems have been noted with the use of the interview in research, namely the one of invalidity due to bias. The sources of bias can be the characteristics of the interviewer, the characteristics of the respondent, and the substantive content of the questions. These may include: the opinions and attitudes of the interviewer, a tendency of a researcher to look for answers that support her preconceived notions, misperceptions on the part of the interviewer of what the respondent is saying, and, opposite, misunderstanding on the part of the respondent of what is being asked.

To overcome these problems, according to Stake (1995), a research-question-based set of questions should be worked out in advance and tried out in pilot form (even if it takes a form of mental rehearsal). During the actual interview, the researcher should stay in control of the data gathering by keeping in mind main questions, creating probes carefully, and asking if what was said was really meant.

Before completing the interview guide some exploratory, informal interviews were conducted. The information obtained through these interviews as well as from the literature review and documentary analysis served as a basis for the creation of a

final interview protocol (Annex 3). This included four thematic groups, each of which, except for the first and the last one, corresponds to a particular research question. The first thematic group includes general questions about a broader funding context and serves the purpose to prepare the interviewee for the subsequent questions and to limit the boundaries of the topic. The second group of questions focuses on revenue generation at the institutional level in terms of strategy, incentives and restrictions. The third group seeks to find out the influence of revenue diversification activities on organisational structure and decision-making processes. We conclude the interview with some questions regarding future developments of higher education funding and revenue diversification in particular. As it has been mentioned previously, Portuguese higher education institutions undergo significant changes as a result of recent reforms. We assume this can have some implications for the way they are funded and operate. Final questions seek to bridge the present project with future research in this area.

Interviewees were grouped into two subcategories. The first, “top managers” included Vice-Rectors, Pro-Rectors and Administrators. The second subcategory, “middle managers”, included deans of faculties or heads of academic departments. We also included here technology transfer offices’ directors. The interview protocol was adapted to each subcategory.

The interviewees were contacted by email with a brief description of the purpose of the study. To minimise pre-structured responses it was decided not to provide interview questions beforehand. However, there were two cases where interview topics were asked for consultation before the interview and were then provided by email. In general, we found that revenue diversification is quite a sensitive topic and some interviewees responded to questions with a certain amount of reservation. To diminish this uneasiness regarding providing information that can become public we guaranteed confidentiality before conducting interviews and asked for permission for recording. Permission was granted in all cases. There were two cases when the interviewees preferred not to answer questions related to internal organisational relations. This posture may be explained by personal motives in relation to one’s

position within the institution and apprehension that information provided can be interpreted incorrectly.

In general, participants in this study were enthusiastic about the subject. There were some problems of terminology as not everyone understood what was meant by revenue diversification and the researcher had to explain its meaning.

Interview data were corroborated by other sources of information, namely, documents and direct observation. Documents are a valuable source of information in a case study research and may include written reports of events, administrative documents, formal studies or evaluations of the same site under the study, articles in mass media and others (Yin, 2003). For case studies, the most important use of documents is to corroborate and augment evidence from other sources. A researcher can also make inferences from documents, which should, however, be only treated as clues rather than definitive findings (ibid: 87).

Strong points of documents as sources of evidence include their stable (possibility to retrieve repeatedly), unobtrusive and exact nature, as well as their broad coverage in terms of time span, number of events and settings. However, as a weakness, the access to documents may be restricted or blocked, information reported in them can be biased, and the selectivity of documents by the researcher can be biased as well (ibid: 86).

The documents accessed and analysed during this study included institutional strategic plans, annual reports, self-evaluation reports and external evaluation reports, institutional statutes and others (for the full list see Annex 2). Documentary analyses provided us with background material about institutions, helped in designing the interview questions, served as a source for corroborating interview data as well as a point of analysis of institutional rhetoric as compared to participants' perceptions.

5.6. Data Analysis

According to Miles and Huberman (1994) data analysis contains three interconnected processes: data reduction, data display and conclusion drawing/verification. The

authors note that these processes occur during all stages of a research project: before data collection, during study design and planning; during data collection; and after data collection as final products are approached and completed.

Data reduction before data collection takes the form of choosing a conceptual framework, research questions, defining cases, and instruments. Once data are available, further selection and condensation takes place by means of coding, finding themes, defining categories, and writing up reports.

Data display is defined as an organised, compressed assembly of information that permits to draw conclusions or take other action. The data display is necessary for a researcher to start thinking about the meanings of collected data. Data displays may be represented by structured summaries, diagrams, and matrices with text in cells instead of numbers.

Finally, conclusion drawing and verification is related to interpretation of displayed data. There exists a vast range of tactics, ranging from typical use of comparison/contrast, noting of patterns and themes, and clustering, to confirmatory tactics such as triangulation, looking for negative cases, following up surprises, and checking results with respondents (ibid.).

In previous sections we described data reduction procedures before and during data collection, in particular, decisions regarding the object of the study, use of methods, choice of cases, and sampling of the data, among others. After concluding data collection we proceeded with data treatment. The analysis of case study evidence can present considerable difficulties, especially for a novice researcher. Increasingly, computer assisted routines have become popular. The software helps to code and categorise large amounts of text collected from interviews or documents. A specialised content analysis software NVivo8 was used for data treatment. This stage of investigation helped us to organise the empirical data, interpret the results of the interviews and critically discuss them. It also prepared the basis for the further comparison between institutions.

Content analysis is a set of techniques analysing human communication by objectively and systematically identifying specific characteristics of messages in order to make inferences about them (Bardin, 2008, p. 44). Content analysis has been primarily used as a quantitative research method until recent decades. Many current studies use qualitative content analysis, which addresses some of the weaknesses of the quantitative approach, namely, its detachment from the context.

Given the qualitative character of the study, the analysis of interviews was not based on the frequency of appearance of specific elements of messages. Instead, our role as a researcher was to interpret the meanings conveyed by interviewees and their understanding of the context in which they make decisions. Qualitative content analysis is described to be mainly inductive, grounding the examination of topics and themes, as well as the inferences drawn from them, in the data. In some cases, qualitative content analysis attempts to generate theory.

Content analysis involves a process of codification, which means transformation of raw data into categories or themes. In order to do so a unit of analysis has to be established. In a qualitative content analysis an individual theme is often used as a unit of analysis. A theme can be defined as an affirmation about a certain subject of a variable length whose validity is not of linguistic but of a psychological order. An instance of a theme might be expressed in a single word, a phrase, a sentence, a paragraph, or an entire document. According to Bardin (2008) thematic analysis presupposes discovery of kernels of meaning whose presence or frequency of appearance can mean something for a chosen analytical objective (p.131). Following this rationale we used semantic criterion for defining categories: for example, all themes meaning success factors for revenue diversification were grouped into a category “success factors”.

Categories and themes were developed from two main sources: interview data and theoretical framework. An initial list of coding categories was generated from previous research and the theoretical framework and then modified as the rest of the themes and categories emerged from the data. This process was conducted in two stages, as suggested by Bardin (2008, p. 146): *inventory*, when necessary elements of the

messages were isolated; and *classification,* when elements were submitted to classification and organisation into categories and themes. This process resulted in a grid comprised of themes which were grouped into categories that in turn were combined into larger dimensions.

In order to validate the coding grid we adopted a set of procedures suggested by Bardin (2008, p. 147). According to this author, “good” categories possess the following qualities: they are *mutually exclusive*, meaning that the same unit of analysis cannot be present in more than one category; *homogeneous*, meaning that categories are organised according to a single principle; *relevant* – adopted to material of analysis and theoretical framework; *objective and accurate*, i.e. different researchers have to code the same material in a similar way; and finally, *productive* – they have to be rich in new hypothesis, exact data and inferences.

Below we will present and describe the main elements that served as a base for data analysis (Table 23).

Table 23 - Dimensions, categories and themes

DIMENSION I: PROCESS Under this dimension the data that answer the research question "How do you do it?" are grouped: everything that relates to the interviewees' perceptions regarding the process of revenue diversification.	
CATEGORIES	
MEANINGS	Relates to the meanings and roles the interviewees attribute to revenue diversification
STRATEGY	Relates to the perceptions of the interviewees regarding the existence of an institution-wide strategy to raise its own revenue.
SUCCESS FACTORS	Factors that interviewees think facilitate revenue generation activities or permit the institution to successfully raise revenue.
	Themes
	Internal success factors Perceptions and opinions of the respondents about what organisational characteristics can facilitate revenue diversification, for example, quality of human resources and infrastructures; institutional culture; support from leadership; historical factors and location.
	External success factors Perceptions of the respondents about what environmental characteristics can promote revenue diversification, for example, prosperous economy, government regulations.
CONSTRAINTS	Impediments to successful revenue generation from both within the institution and from the outside environment.
	Themes
	Legal Constraints related to the legal framework of higher education institutions, such as career progress rules and bureaucratic requirements

	Managerial Constraints that the interviewees relate to staff management policies within the institution; the internal flow of information and bureaucratic burden. **Financial** Constraints related to the instability of public and private funding and costs involved in the revenue diversification process. **Cultural** Constraints related to cultural differences between the academic and the business world.
INCENTIVES AND MOTIVATION	This category comprises data that tell us about the interviewees' perceptions on the motivation for involvement in revenue generation activities and about incentives that exist.
	Themes
	Intrinsic Academic career is seen as a life choice and research as an end to itself. Revenue diversification is seen as a by-product of research or teaching activity. Other important factors are prestige, freedom and security. **Extrinsic** An academic participates in revenue diversification activities because research and increasingly third mission activities are part of career assessment and progression. It is also a necessity for institutional and basic unit's survival.

DIMENSION II: INFLUENCE

Here, the data regarding the influence of revenue generation as a process on organisational and academic life are gathered, answering the second research question "How are universities' processes and structures influenced by the need to generate additional income?"

CATEGORIES	
STRUCTURES	Impact of revenue generation activities on organisational structures.
	Themes
	Institutional level

	Structural changes that took place at the central level: creation of new support units, services, new posts. **Basic unit level** Structural changes that took place at basic unit level. Relates mostly to faculties at the University of Lisbon because they possess full autonomy. **Desired changes** Perceptions and opinions of interviewees regarding what structural changes are necessary for promotion and success of revenue diversification
RISKS	Perceptions of the risks revenue generation activities may present to academic life.
OPPORTUNITIES	Opportunities that revenue generation (instructional initiatives, research and cooperation with society) brings to people and institutions.

DIMENSION III: CONTEXT

This dimensions comprises interviewees' perceptions about internal (institutional) and external (government and society) context for revenue generation activities. Here the data regarding changes in attitudes, conditions, and rules are presented.

CATEGORIES	
INSTITUTIONS	Perceptions of the interviewees about changes that have occurred at their institution are occurring now and what expectations the interviewees have regarding the future of their institution. **Themes** **Past** Reflections and comparisons with organisational environment in the past. Perceptions about institutional evolution on the path to revenue diversification. **Present** Perceptions of interviewees regarding current institutional context. **Future** Perceptions of interviewees regarding the future of their organisation vis-à-vis the state and the market.
STATE	Here opinions about the influence of the state on the ability of institutions to generate additional revenue are

	gathered. **Themes** **Past** Reflections about government policies in the past 20 years and their influence on the current situation. **Present** Perceptions regarding university-state relationships in terms of funding and governance and impact of these relations on the ability to generate revenue. **Future** Interviewees' perceptions on how university-state relationships will change in the future.
SOCIETY	Perceptions of the interviewees regarding the role of society in the process of the revenue diversification. **Themes** **Past** Reflections about the evolution of society's involvement into higher education; the roots of university-society cooperation. **Present** Perceptions on university-society cooperation; existing conditions for this cooperation in the Portuguese society. **Future** Perceptions on society's role as higher education co-financer in the future.

The above coding grid is organised into three dimensions each corresponding to a particular side of the revenue diversification phenomenon. The dimensions represent a higher level of analysis and are comprised of categories which are in turn organised around several themes.

The first dimension - Process – tries to look at perceptions and opinions of the respondents regarding different aspects of the revenue diversification process. In the first place, we tried to understand what meanings academics in management positions attribute to revenue diversification in the context of their institution. It was assumed, based on the literature review, that revenue diversification is becoming more important and even critical in Portuguese higher education. Therefore, the next step of the analysis was to find out if institutions are adopting any formal strategy in

this direction and if this strategy is communicated to different levels within the organisation. Finally, we tried to understand, through interviewees' perceptions, what they consider to be success factors and the impediments for revenue diversification and what intrinsic and extrinsic motivations and incentives there exist for academics to be involved in revenue diversification activities.

The second dimension – Influence – aims to find out the changes in organisational structure that respondents attribute to the process of revenue diversification. Besides changes in structures we were interested in the influence on academic culture, because revenue diversification is a process that evolves on the boundary between academic and business worlds. In this regard we wanted to know which risks and opportunities this boundary crossing presents for institutions.

Finally, the third dimension – Context – reveals perceptions about the evolution of relationships between universities and the state on the one hand, and society on the other hand. Under categories "institution", "state" and "society" interviewees perceptions were grouped into three thematic groups: past, present and future. This dimension allowed us to track the dynamic of these relationships and better understand how these relations facilitate or impede revenue diversification.

Based on the above described dimensions, categories and themes we will proceed in the next chapters with the empirical analysis. Chapter 6 is dedicated to the case-study conducted at the University of Aveiro and Chapter 7 will present empirical analyses of data gathered at the University of Lisbon.

CHAPTER 6 - CASE STUDY 1: The University of Aveiro

The objective of this chapter is to analyse revenue diversification and its influence on institutional organisational and managerial structures at the University of Aveiro. This will be done in three parts. First, an institutional profile will be presented. The literature suggests that organisational characteristics may influence the ability of an institution to engage in revenue generation activities (Clark, 1998; Shattock, 2003). We will start with a historical note on how the University was founded and describe its physical setup (geographic location and campus). Universities' research capacity has been pointed out as a critical factor for the ability to attract additional revenue through research and service contracts. We will therefore present a research profile of the university and its scientific orientation. The following sections will present an overview of the institution's organisational structure and budget composition. We will finish the descriptive part of the case study with the process of strategic thinking at the university. A particular emphasis will be placed on initiatives that in our point of view could have influenced the university's ability to diversify its funding base.

In the empirical part of the chapter we will turn to the perceptions of the interviewees about revenue diversification in general and about organisational changes linked to it in particular. Finally, concluding remarks about the findings will be presented.

A total of seventeen interviews were conducted between May and July of 2010. To guarantee the anonymity of the participants of the study the interviews were coded in the following way: interviews with central administration offices are designated by letters "TM" – top management, and interviews with heads of departments by "HD". Each interview was attributed a number.

6.1. Institutional Profile

6.1.1. History

The University of Aveiro is a public university that was established in 1973 by Decree-Law 420/73. It has around 13,500 students and employs nearly 1,500

members of staff, which comprises, approximately, 1100 academics. In 2009 the University of Aveiro (UA) adopted a foundation status.

UA is a so-called third generation university (Amaral et al, 2002) (considering the University of Coimbra the first one and the Universities of Lisbon and Porto the second generation) and was created to serve the purpose of expansion of higher education in Portugal both in terms of student numbers and in terms of regionalisation.

From the start UA looked for and received strong regional support. For example, the first study programme in Electronic Engineering and Telecommunications started in 1974 in a building lent by the Study Centre in Telecommunications of C.T.T. (Portuguese Mail, Telegraph and Phone services). The course in Ceramic and Glass Engineering was created in 1976 with the aim of responding to the needs of regional industry. Environmental Sciences and Teacher Training were other pioneering areas. Subsequent programmes in Technologies of Communication, Industrial Engineering and Management, Regional and Urban studies, Music and Design were all new areas at national level. Today, Electronics and Telecommunications, Materials and Nano sciences, Environmental and Marine Studies and Teacher Education are recognised as four areas of excellence (University of Aveiro, 2007).

The geographic location has influenced the initial strategic choices of the University. UA is situated between two university centres, Porto and Coimbra, with strongly established university traditions and secure social and symbolic legitimacy. Thus, geographic location has been both a challenge and a stimulus for the university since its foundation. The university had to search for its own way, diversify the offer of its study programmes, and look for partnerships with local industry and municipalities.

In 1997, the University of Aveiro started a process of integrating the polytechnic schools into its organisation. The polytechnic schools offer Licenciaturas and technological specialisation courses (since 2006) which are meant to have a clear vocational character, aim at rapid job placement after graduation and are related

to the local economy. According to institutional documents (development plans), the choice of integrating polytechnic education was dictated by the estimation of educational needs of the region as well as by the characteristics of the industrial activity. As previously noted (Chapter 4), in general, the Portuguese population is characterised by a low level of educational attainment (Section 4.2). Therefore, an alternative way to entering higher education with a perspective of a faster entry to the job market and the possibility of transferring to the university track later seemed to the university leaders a good strategic choice.

The university has three campi. The main campus is located in the town of Aveiro, a medium-sized city in Portugal's central region. While this may be only a perception of the researcher, it seems worth mentioning the physical attractiveness of the university campus to prospective students, partners and investors. For example, the campus is renowned for its many buildings designed by famous Portuguese architects and was rewarded in 2000 with a prize of the Association International des Critiques D'Art – Portuguese Section. More recently, four buildings on campus built between 2000 and 2003 were also recognised with the Award of Architecture and Urban Planning of the local Municipality. The buildings are all purpose-built and the fact that all university departments, administrative services and student residential buildings are on the same campus creates the atmosphere of proximity and cosiness.

6.1.2. Organisational structure and governance

The University of Aveiro did not follow the traditional faculty structure but is organised in departments and polytechnic schools instead. This organisation arguably allows for a greater proximity between the governing bodies and the basic units (departments and schools). UA is also more centralised than usual. The basic units do not have financial autonomy and the university is managed from the centre.

The organisational design of the university follows a matrix structure. For example, all physics courses are taught by the academic staff from the Physics department. This arguably allows for a better use of human and financial resources by avoiding

duplicated costs and staff responsibilities. The university is divided into fourteen different departments, two units without departmental designation (one of them became a department in 2011) and four polytechnic schools.

Before the new legal regime was adopted, governance bodies of the university used to be composed by a Rector, the University Assembly, the University Senate and the Administrative Council. The highest body, the University Assembly, was composed by 40% academic staff, 40% students and 20% other staff, which corresponded at UA to a total of 230 members. The function of the University Assembly was to elect the rector and approve the University Statutes. The Senate was composed by elected members from academic and non-academic staff and students and ex-officio members. It was responsible for approval of development plans and annual activity reports, creation and extinction of degree programmes, setting of tuition fees, staff policies and other university management issues. According to the Law (108/88) there was a possibility of participation of external members in the University Senate. UA was one of seven Portuguese public universities (out of 14) that decided to include external personalities in its Senate – 2 out of a total of 63 members. The Administrative Council oversaw administrative, financial and real estate management. Finally, there was the Rector, who presided over the Senate, and whose power depended a lot on his leadership skills and charisma. The Rector, who was elected, appointed high-level institutional officers (Vice-Rectors and Pro-Rectors).

The university also had two coordination bodies: the Scientific Council and the Pedagogic Council. The Scientific Council was composed of all teaching staff with a doctoral degree (over 600 members). Its main aim was to deliberate on all scientific matters. The Pedagogic Council was composed of an equal number of teaching staff members and student representatives (one of each for each study programme), which meant a membership of around 100 people. This body, which was consultative, was expected to give advice on pedagogic matters.

The Statutes also contemplated a second type of structures, at an intermediate level. The main ones were four Institutes – the Research Institute, the

Undergraduate University Education Institute (IFIU), the Postgraduate University Education Institute (IFPG) and the Polytechnic Higher Education Institute (IFSP) – which had the role of coordinating the basic functions of the university: education, research and cooperation with society.

The departments were governed through four management bodies: first, the Plenary, whose main competence was to approve the department statutes; second, the Assembly of Representatives (integrating all members of the Department that sit on the Scientific Council, elected members representing non-PhD teaching staff, administrative staff, undergraduate and postgraduate students, and a representative of the Students' Union), whose main purpose was to elect the head of department and approve the annual activity plan and the annual financial report; third, the Department Board, the main executive body, which was composed of the head of department and two other members (one academic and one non-academic) chosen by the Head; and fourth, the Scientific-Pedagogical Council, which could act in plenary, or through two subcommittees (scientific and pedagogic). It was responsible, among other things, for defining the structure of study programmes and proposing juries for competitions for academic positions. The Pedagogical Committee coordinated pedagogical activities.

At the time the interviews were conducted (between May and July 2010), and similar to what happened at every Portuguese university, the university was undergoing restructuring according to the new legal regime established by law 62/2007 which introduced changes to the existing decision-making bodies and authority structures. The new statutes of the university, contemplating these new governance and management arrangements, were implemented in May 2009, after being homologated by the Minister of Science, Technology and Higher Education. The new governing bodies are: the General Council, the Rector and the Management Council.

The General Council, elected in July 2009, is composed of 19 members (10 academics, 3 students, 1 non-academic staff and 5 external representatives) and is chaired by an external member. This Council has the power to elect the Rector

of the university and to approve the budget, annual plans and strategic plans. It is also responsible for creating, transforming and closing basic units and for approving the strategy of the institution concerning scientific, pedagogic, patrimonial and financial matters.

The Rector, elected by the General Council in January 2010, is responsible for leading the institution. His team is composed of 5 Vice-Rectors and 5 Pro-Rectors. The Management Council is composed of 3 members (the Rector, who presides, a Vice-Rector, and the Administrator) and is responsible for the administrative, patrimonial and financial management of the university.

There are also two bodies responsible for the scientific and pedagogic management: the Scientific Council and the Pedagogic Council. The former is composed of 25 academics and can, among other things, evaluate the plan for the scientific activity of the university, give advice on the creation, suspension and extinction of basic units, and on the creation of new scientific areas and degrees. The latter has 25 members (the president, 12 members of academic staff and 12 students) and is expected to give advice on pedagogic matters, including teaching and evaluation methods.

The university has also decided to nominate a Student Ombudsman and to create three consultative bodies: the Ethics and Deontology Council, the Council for Cooperation and the Disciplinary Commission.

The running of departments is now guaranteed through four management bodies: first, the Director, who is nominated by a committee, composed of the Rector, two permanent members and two members from the department. He or she is responsible for governing and representing the department; second, the Executive Committee, which is composed of the Director and three or four other members of the department, chosen and exonerated by the Director. This committee is aimed at ensuring the establishment of an efficient link between the department and other structures, bodies and services of the university, at all levels; third, the Departmental Council, with a membership between 15 and 20 people, including academics (at least 60% of the members), students and non-academic staff. This

is a consultative body, which can give advice, among others, on matters related to academic and research careers, degree programmes, budget and activities' reports.

Being a foundation, the university is obliged by law to have two other governing bodies: the Council of Curators and an Auditor. The first, composed of 5 external members nominated by the Government, is, among others, responsible for approving the statutes of the university, for homologating the results of the Rector elections and for authorising or proposing the alienation of the university estates. The latter, an external member also nominated by the Government, has to monitor and evaluate the financial and patrimonial management of the university.

6.1.3. Scientific and research profile

UA offers over 50 first cycle programmes (Licenciaturas) and around 110 post-graduate programmes (Master's and PhD). One of the features of the educational offer is the share of programmes in engineering, technology and sciences (twenty-five out of fifty first cycle programmes) which are also responsible for the greater part of the total of first degree enrolment (University of Aveiro, 2007). "Soft" sciences are also present in the form of predominantly applied programmes.

Intuitive judgment in relation to the subject mix of the university would be that the predominance of science, engineering, and technology would facilitate the links with industry and outside society and create a more propitious culture within the institution towards this kind of collaboration.

Some of the research areas where the university has played a leading role are intelligent robotics, telemedicine, next generation mobile communications, bioinformatics, genetics, advanced materials, nanotechnology, environment, marine studies, clean technologies, music, and multimedia. Excellence in research is one of the hallmarks of the university; around 80% of its 19 research units have been classified with very good or excellent in recent evaluations carried out by international specialists. Another indicator of research excellence is the high

percentage (around 85%) of university researchers that belong to research units with a classification of “Excellent” and “Very Good”.

Four of the university research units (Centre for Environmental and Marine Studies; Centre for Research in Ceramics and Composite Materials; Institute for Nanostructures, Nano-modelling and Nanofabrication and Telecommunications Institute) were also attributed the statute of Associate Laboratory (AL), an accolade that the Portuguese government attributes only to some institutions of indisputable merit. The Centre for Research in Ceramics and Composite Materials (Portuguese acronym - CICECO), for instance, with 216 members and 27 registered patents, is an Associate Laboratory and one of the few national laboratories with the statute of the Marie Curie Training site. In 2006, CICECO published 5% of the total of Portuguese papers indexed in the web of science. The Telecommunications Institute participated in one of the largest European projects in the area of telecommunications – Daidalos (an Integrated Project in the thematic priority 'Information Society Technologies' of EU Framework Programme 6 for Research and Development). Very recently, the international Nokia Siemens Network installed a research unit at the university to develop advanced research in the field of telecommunications, in close connection with this Institute. Another example of research in cooperation with business is collaboration with the Study Centre in Telecommunications which gave origin to PT Innovation, the R&D branch of the biggest telecommunications operator in Portugal.

The cooperation with society in specific areas is fostered through a number of interfaces and institutions where UA has its share. The UA group includes besides UA, the Foundation João Jacinto de Magalhães, UNAVE Association for Professional Training and Research, GrupUnave – Innovation and Services, Lda, IDAD – Environmental and Development Institute and LIQ – Industrial Laboratory of Quality. Below a description of some interface units is provided (Table 24):

Table 24 - Some interface units and their description

Institution	Brief description
Foundation "João Jacinto de Magalhães"	Institution governed by private law, founded in 1991. The main objective is to promote scientific, technological and cultural development through joint initiatives with UA. It promotes university society cooperation through knowledge transfer, provision of services and training to the larger community.
UNAVE - Association for Professional Training and Research	A private, non-profit entity founded in 1986. It is an interface unit of UA for continuing education.
GrupUnave – Innovation and Services, Ltd.	Founded in 1998, this entity's objective is to facilitate the cooperation between university and business, promote and spread entrepreneurship and aid in dissemination of new knowledge. GrupUnave manages a business incubator; cooperates with the university technology transfer office; provides technical support to businesses, among other activities.
IDAD - Environmental and Development Institute	A non-profit organisation that helps companies with environmental issues, founded in 1993. Principal areas are: environmental audit and control; quality of interior environment; environmental monitoring; strategic and planning studies.
LIQ - Industrial Laboratory of Quality	This technical-scientific association provides services to industry and electrical facilities.
UATEC – Technology transfer unit	Created in 2006 it specialises in four areas: industry liaison, intellectual property management; licensing and entrepreneurship.

Source: (http://www.ua.pt)

The involvement of the university in external cooperation can be seen from the number of signed protocols with different entities.

Table 25 below shows that the number of collaborations with different institutions has significantly grown in the past years, especially concerning cooperation with business companies.

Table 25 - Number of signed protocols between the university and external entities

Year	Educational institution	Government organisations	Business companies
1996	5	6	6
1997	16	6	7
1998	25	25	2
1999	18	9	19
2000	12	13	20
2001	57	13	23
2002	60	34	17
2003	50	22	24
2004	71	36	50
2005	38	20	50
2006	21	44	65
2007	97	29	140
2008	90	41	185
2009	78	69	220

Source: University of Aveiro (2009)

6.2. Financial Resources

6.2.1. Income structure

Until recently UA as any other Portuguese university received its budget for functioning and for infrastructures as a government transfer. The state allocation for functioning was calculated according to a funding formula and attributed as a lump sum which was then transferred in monthly instalments. The funding for infrastructures was attributed on a contractual basis, according to the investment plan presented by the institution and negotiated with the Ministry.

With the foundation status some changes to state funding were introduced. Besides government transfers, universities-foundations are funded through multiannual contracts based on performance indicators. These contracts cannot last less than three years. In 2009 such a contract was celebrated between the University of Aveiro and the government. According to this contract, the university commits itself to achieve goals in the following areas:

- Increase the number of scientific publications from 4,400 to 6,800;
- Increase the number of citations from 15,900 to 38,000;

- Increase the number of post-graduate students from 4,000 to 5,025;
- Increase the number of foreign students from 850 to 1,000;
- Increase the amount of external contracting from 35,500 K€ to 41,800 K€.

Other sources of income include tuition fees, national and international research funding, revenue from services provided to the outside community, sale or rent of property, interest on deposit accounts and profit from other investments, donations, fees, fines and others. Tuition fees and research funding represent the second and third biggest share of other than government basic funding. The biggest proportion of research funding is provided through the Science and Technology Foundation (FCT), followed by EU funding, 61% and 24%, respectively in 2009 (http://www.ua.pt).

The importance of tuition fees in the institutional budget has grown since 2003 when a minimum and a maximum value for tuition fees was established (Law 37/2003 of 22 August). UA as many other public universities tends to charge tuition fees at the maximum legally allowed level.

The share of revenue from sale of services more than doubled from 3% of the total budget in 2002 to 6.5% in 2010.

Table 26 presents the structure and evolution of the university's income structure for selected years. Due to some differences in reporting in each year, it is not always possible to obtain accurate numbers and percentages. Therefore the figures below should be regarded as approximation to real numbers.

Table 26 - Evolution of the income structure

	2010		2009		2005		2004		2002	
	amount	**%**	**amount**	**%**	**amount**	**%**	**amount**	**%**	**amount**	**%**
State budget	54,462,060	57%	48,699,508	57%	41,809,257	60.5%	42,673,545	62%	41,348,529	64%
Other transfers and subsidies*	15,718,375	16.5%	14,671,691	17%	7,836,542	11.3%	7,694,826	11%	5,620,074	9%
Tuition fees and related payments	13,020,662	14%	12,918,533	15%	10,082,691	14.5%	9,107,807	13%	5,409,999	8%
Sale of Services	6,294,309	6.5%	5,455,962	6.4%	2,307,839	3.4%	2,185,642	3.2%	1,919,142	3%
Financial gains**	422,349	0.4%	387,980	0.5%	555,212	0.8%	539,567	0.8%	-	-
Other income	5,457,557	5.6%	3,562,848	4.1%	6,561,194	9.5%	7,077,343	10%	-	-
Total	95,375,312	100%	85,696,522	100%	69,152,735	100%	69,278,730	100%	64,727,797	100%

*- other transfers and subsidies relate to EU structural funds, EU subsidies, The Science and Technology Foundation transfers and other transfers from public and private entities.
**- interest on bank deposits.

It can be observed from the data that during the past several years the share of state formula funding has diminished. However, other public transfers increased considerably, which suggests that public funding continues to play a predominant role in the overall funding structure. The share of tuition fees presents a significant growth, especially from 2004, the year when there was a significant rise in the amount of tuition fees. A remarkable growth can be registered in "sales of services" budget item; the income from this activity has more than tripled in eight years and its share in the overall budget has doubled.

6.2.2. Budget allocation

As we have mentioned earlier, the university has a centralised structure. The majority of expenses are paid centrally (this is about to change though under the new statutes). The balance between the expenses paid by the central administration and the departments is about 77% and 23%. The centrally decided

expenses are mainly salaries and infra-structure related costs. The expenses paid by each department are laboratory equipment, consumables, etc.

After deducting all the expenses that should be paid centrally, the central services divide the rest of the budget between the departments. Departments' budget is calculated on the basis of the same formula that is used by the Ministry to calculate the institutional budget. The revenue from tuition fees for the first study cycle and for the second study cycle, in case of integrated Master's programmes, also stays at the central level. The revenue from the third study cycle (PhD tuition fees) is divided 50%-50% between central administration and basic units.

The university administration also keeps overheads from research grants, 20%, and contracts of cooperation with society, 30%. According to the interviewees from the top management these overheads are used to finance research projects and cooperation with society. As it often happens the funds for research projects are not transferred immediately and research units ask for advancement of funds from the university administration.

The management of resources at the departmental level is decentralised. It is the responsibility of the heads of departments to execute the activity plan. Heads of departments may authorise expenses directly of up to 5,000€. Beyond this amount and up to 49,879.79€, the expenditure depends on the prior authorisation of the university administration. Between the aforementioned amount and 1 million Euros it is the Rector who authorises the expenditure, and beyond this amount the authorisation can only be granted by the Ministry.

From the interviews we have learnt that each department decides whether to charge overheads from research units located in it or not. Some departments charge around 10% on some research projects (the decision is usually based on a case by case basis); other departments charge a fixed amount per researcher in the research centre. The decision to keep some overheads at the departmental level was explained by the necessity to generate revenue for meeting the current expenses of the department or common expenses for laboratories.

6.3. Strategic Thinking and Planning

The University Autonomy Law (108/1988) that has been, until recently, the major legal document that regulated university governance, stipulated that universities should mandatorily elaborate annual reports in which a reference should be made to development plans and their execution. The development plans were to be prepared by the Rector and approved by the University Senate. In the law on the new legal regime of higher education institutions (Law 62/2007) the term “strategic plan” is used. This new, modernised “jargon” is probably used in order to keep in line with international terminology and also to stress that higher education institutions are entering a new stage in their history. The elaboration of the strategic plan remains the Rector’s responsibility and has to be approved by the General Council.

The objective of strategic planning in universities must be to achieve and sustain success of their missions (Shattock, 2003). The mission statement of the University of Aveiro is to “create knowledge and expand access to knowledge through research, education and cooperation for the benefit of people and society; to undertake the project of global development of the individual; to be active in the construction of a European research and education community; and to promote a model of regional development based on innovation and scientific and technological knowledge”. As with most mission statements it is quite generic and does not tell much about institutional reality. To understand how this mission has been translated into institutional actions over a period of time, we analysed the university’s development plans and other documents (see Annex 2).

By analysing the development plans of UA over the past ten years we can observe an evolution of discourse towards more openness to the outside society and more cooperation with it. For example, in the Development Plan 2000-2006 the attention was paid mainly to the university’s teaching activities, namely to new educational offers both in the university and polytechnic sub-sectors, post-graduate programmes, life-long learning and distance education. Such areas as recruitment of new students, their integration and retention, pedagogical processes,

methodology and curriculum were addressed. In 2007, the self-evaluation report prepared by the university for the external evaluation by the European University Association (EUA) identified as the university's main goals: research excellence, internationalisation of educational offer, an increase in postgraduate students, improvement of the quality assurance processes, strengthening the partnerships with industry and business, promotion of continuous education and decrease of the dependence on the state budget.

The most recent documents that serve as guidelines for the development of the university are the Development Project of UA prepared by a specially designated committee in 2008 for the Ministry and the Action Programme for 2010-2014 presented by the Rector as his candidacy programme. In the Development Project the goals of increasing postgraduate student numbers, internationalisation, and attracting new publics to the university are reinforced. In terms of research, the creation of a Doctoral School is seen as a step towards strengthening the university's research base. A special attention is paid to the internationalisation of research, cooperation with national and European universities and promotion of partnerships with industry through sponsored Chairs, for example. Another aspect that is emphasised in this Project is cooperation with society and technology transfer. Cooperation with society is seen mainly through providing educational and cultural opportunities for the working population, creation of flexible study hours, providing retraining courses for business companies, etc.

Since the self-evaluation report of 2007 a growing attention has been given to funding issues. The points of the action plan of the self-evaluation report included: creation of mechanisms to optimise access to and take advantage of existing national and international funding frameworks; development of an accountancy system capable of imputing total costs; diversification of funding sources; putting in place fundraising initiatives and mechanisms. In 2008, in the Development Project, funding diversification is identified as one of the needs in order to meet the challenge of funding constraints.

Real importance is given to revenue diversification in the Action Programme of the

Rector that served as a strategic orientation for the university until the strategic plan was elaborated. According to the Action Programme the goals to be achieved by the university are as following: maintain its position among the best Portuguese universities; consolidate its leadership in research; achieve a position of great international importance in at least two research areas; be at the top of Portuguese universities in terms of cooperation with the outside community and as a catalyst for regional development and innovation. The document recognises the importance of revenue diversification in order to achieve these goals. Revenue diversification is mentioned in several contexts: as a means to respond to European policy recommendations (OECD, 2008b; EC 2008); as a necessity in the current financial situation; as a source for financing research; and as a way to reduce dependency on state funding.

In comparison with other studied documents, the Action Programme is written in a more business-like way: the goals are clearly formulated and specific measures are proposed for each goal. Thus, the measures for strengthening research at the university include: reinforcement of the Technology Transfer Unit, incentives for researchers who work with industry or have their own business initiatives, and review of the intellectual property regulation, among others. Another feature from the corporate world is a preoccupation with the image of the university. The proposed measures are: a web page of great quality; promotional literature; participation in international higher education fairs; review cooperation with secondary schools; provide better sports facilities, housing, improve overall student experience, etc.

The Action Programme addresses a vast number of issues and may raise questions about its actual execution as, for example, it does not mention human and financial resources necessary for achieving these goals. However, this wide coverage is understandable within the context of the Rector's elections and the desire of the candidate to touch upon various areas. What distinguishes this document is a more business-like approach to the university development, or at least an intention to look more business-like, which alone may signal a change in attitude of the university, at least at the central administration level. In the

discussion of empirical results we will revisit the question of strategic planning, by asking interviewees in both top and middle management positions about the university's strategy regarding revenue diversification.

6.4. Presentation of Results

In this section we will present the results of the interviews conducted at UA. They will be organised according to the analytical model described in Chapter 5. We will start with the perceptions of participants regarding the process of revenue diversification: its meanings, strategy, success factors, constraints and incentives. We will then continue with the perceptions that will help us to answer the second research question about the influence of revenue diversification on organisational processes and structures. We will do that by analysing structural changes that took place in the past 10-15 years as well as through exploring positive and negative influences of revenue diversification activities, or, in other words, the opportunities and risks of revenue diversification. Finally, through the interviewees' perceptions, we will have a look at the changed context for institutions, state and the larger society. The data regarding changes in attitudes, conditions, and rules are presented.

6.4.1. Process

In this section we would like to see what meanings the interviewees attribute to revenue diversification and how it is incorporated in the institutional strategy. We are also interested in success factors and constraints that accompany this process as well as the existing incentives for revenue diversification.

6.4.1.1. Meanings of revenue diversification

The analysis of national legal documents in the area of higher education funding presented in Section 4.3.3 demonstrated that since the late 1990s revenue diversification has been given an increased visibility in Portuguese higher education: public universities were granted an increased autonomy in their financial and personnel management, tuition fees were substantially raised, the Science and Technology Foundation was established, other legal and

administrative changes were implemented. These developments presented higher education institutions with opportunities to obtain and benefit from additional revenue sources. Similarly, the analysis of documents produced by UA showed a growing awareness and preoccupation with alternative sources of income, especially in the past two-three years, when the term “revenue diversification” entered the official institutional discourse.

The interviewees were unanimous in attributing great importance to revenue diversification. First of all, according to the university’s new legal status, it is obliged to generate at least 50% of own revenue. Additionally, both at the university-wide level and at the departmental level, own revenue is considered to be fundamental for the institution’s day-to-day functioning.

> The state budget [formula funding] provides minimum financing for a certain number of students and for the permanent academic staff. (TM4)

At the basic unit level, the heads of departments reported that the state budget allocation is much below their departments’ needs.

> With state budget it is impossible to manage the Department during the whole year. (HD9)
>
> Earned income is fundamental for the Department’s reasonable everyday functioning. (HD12)
>
> The money that we receive from the central administration is not enough for the Department to live on. (HD5)

Additional resources received by the departments are used for updating the laboratory, computer, classroom or other equipment, subsidising academic staff and students’ mobility, participation in conferences, in other words for providing better quality for teaching and research.

Besides supplementing revenue from the state budget, revenue diversification is perceived to be necessary for creating positive dynamics of institutional development. The existence of discretionary funds allows for participation in

international and national projects as this often depends on the advancement of funds from the university. If the university does not have a reserve for this co-financing, its ability to respond to opportunities is very limited. The funds for advancement are usually comprised of overheads the university retains from research projects and contracts.

> Without any doubt [the revenue diversification is important]. It is important for every day functioning but it is also important for institutional dynamics, to search for additional revenue, to evolve in this way. The money itself is important, but the important thing is the dynamics of the institution itself, what the university is compelled to do to raise funds; they do not fall from the sky, therefore it needs to be proactive. And this is absolutely fundamental [being proactive] for the development of institutions, I think. (TM2)

> If the institution stays with the state budget only and does not look for research funding and cooperation with community, it does not grow, does not develop. Therefore, there is a dual objective here: to get funding but also to develop, because if not, it is impossible to survive. (TM4)

> [Revenue diversification] is a benefit because it promotes the connection with society and obliges the university to fulfil one of its objectives that is to be a promoter of national development. On the other side, it is also important because it makes the university proactive in order to obtain funding. (HD9)

These perceptions find support in the literature. Shattock (2003), for example, points out that the availability of finance for investment in new developments is a key factor in university success. The dependence on state budget provided through a funding formula prevents the administrative centre of the institution from being responsible for strategic direction to an autonomous and self-governing community (p.27). The same logic can be applied to the departmental level. If the department relies on money allocated from the centre, which is, according to our study, in many cases insufficient; it will stagnate and deteriorate.

As non-profit organisations, public universities try to maximise excellence of their mission or multiple missions (for-profit organisations try to maximise the bottom-line in the first place) (Weisbrod et al., 2008). Therefore, they will tend to subsidise activities they consider necessary to advance further their missions. In their

discourse the interviewees gave more prominence to mission aspects of revenue diversification activities than to financial aspects. They perceive financial gains from certain types of activities as not being the primary objective.

> The university function is not to make profit; it is to guarantee the necessary development of the community, region and the country through the services that it provides… Institutions do not earn money as a company. What institutions do is research and to do research they need funding, therefore they look for funding to do research. (TM4)

> The fact that there is funding is important, the fact that the basic units are open to the possibility of this additional funding is important. On the other hand and to a certain extent, the direction in which research or the wishes of the university go cannot be purely "economistic". Therefore the institution itself has to define its own strategy, its own way, the priority areas, the position where it wants to find itself 20-50 years from now. These kinds of strategies should really guide everything else, the rest comes as accessory. (TM11)

> This is what we all want – not to get own revenue for the sake of own revenue, but for it to be included in a little bit bigger picture of what university is, which is not exactly a company. It is something that has to do with knowledge and training of people and therefore, we cannot see revenue for revenue only, but see it at a different angle. (HD10)

> There are projects where, as I say, if between profit and costs the sum is zero – I consider it a win already. These are strategic projects for image creation and establishment of relations. We have already done several completely free initiatives. (HD13)

The University of Aveiro has several initiatives to promote scientific culture which do not bring an immediate profit. The Fábrica – Science Centre of Aveiro, the Open Week of Science and Technology, the Summer Academy are some of the examples of programmes offered by the university with the objective of taking science to the public in general and to the youngsters in particular. In the words of one of the Vice-Rectors "*obviously we have costs [with these programmes] but we probably gain some students and have visibility that will pay off for in the long run*" (TM2).

In the words of another Vice-Rector there are two logics that co-exist. In case of research and development contracts with industry, in which a researcher or a research team have a scientific interest or there is a possibility for a patent or other type of knowledge valorisation, immediate profits are not considered. On the other hand, when a company requires a service from the university, the logic of profit prevails (TM3).

Weisbrod et al. (2008) classify the activities higher education institutions undertake as revenue or mission led. With revenue-good activities the goal is clearly financial. Mission-good activities are clearly unprofitable and contribute to mission without covering additional cost of providing them. We may interpret from the interviews that the revenue diversification activities at UA are perceived by the interviewees to be more mission than revenue led. Moreover, as we will see later in the analysis, pure financial motivation is seen as a threat to the institution. The question remains, however, if there is a legal imposition on an institution for at least 50% of its budget to be from alternative sources, how can the institutional management guarantee achieving this target? It was unclear from the interviews how this is monitored.

6.4.1.2. Strategy

The diversification of income sources and intensification of competition provide closer parallels with private sector organisational objectives, namely concerning sustainable financial management, strategic planning and management (Shattock, 2003; Weisbrod et al., 2008). According to previous studies (Eastman, 2006; Estermann & Pruvot, 2011; Shattock, 2008) those institutions that embrace revenue diversification also streamline their institutional strategy, make it more focused and goal oriented. Indeed, the documentary analysis of development plans, management reports, self-evaluation report and EUA evaluation report has shown that there is a tendency, although very recent, to focus more closely on the issues of cooperation with society, revenue generation through research, services, and philanthropy.

In our analysis it was important to understand if the institutional discourse permeates all the levels, if institutional actors are aware of the strategy and what they are doing to implement it. The opinions about the existence of the institution-wide strategy differed. The difference is felt especially at two levels of analyses: institutional and basic unit.

The interviewees in the top management position agreed that there is an institutional strategy to generate revenue:

> Explicit, written and asserted [strategy]. In the programme of this Rector, but it also was part of the programme of the ex-Rector; it is now very clear. In the programme of this Rector there is really a bet on cooperation through contracts, protocols, etc., service providing to community through research and development. It is really a strategic plan. (TM4)

> The university's strategy in the coming years is to increase its capacity to raise its own revenues, namely through contracts for providing services, research and development contracts with business and through other means. So this is our strategy to turn ourselves increasingly to the world around us, particularly to the business with the perspective, of course, also to transfer knowledge. (TM3)

The heads of departments, when asked about the university-wide strategy, responded that clearly some steps are being taken in the direction of revenue diversification:

> There is a dynamic belonging to the university itself – the dynamic that involves the Science and Innovation Park. It is a great attempt to connect the university more to the business world. Together with this initiative there are other ones: alumni data-base creation, contacts with enterprises, etc. Therefore, if you ask me whether I think the Rector and his team has a strategy for revenue generation, I think they are trying to create this strategy in a world that has changed rapidly. (HD10)

> There is clearly a guideline in this sense that permeates all the conversations that are going on between people involved in management and had obviously its high point when a serious thinking was done about becoming a foundation. (HD7)

… but were hesitant to call it an explicit strategy.

> There are no exactly written documents, at least on a big scale, there aren't, there are small references mentioned here and there, but there is clearly an insistence at various meetings… (HD7)

> As far as I can understand, I do not see at the university any clear long-term strategy. If I ask myself now as an academic, what is the strategic objective of the university in terms of funding, I do not know. But I am not saying by this that it does not exist, what I am saying is that I do not know it to the point that it can influence my life as a researcher or as a professor. (HD9)

These contradictory narratives may account for the fact that top management and middle management are located on different levels of change implementation. While top management is aware of the existence of strategic documents and uses strategy points in its discourse, heads of departments were hesitant whether the formal strategic plan existed at the university. They were also referring to the subject as *Rector's* strategy, *central administration's* strategy, and not *university's* strategy. This choice of words may be indicative of the fact that new thinking at the central level has not gained roots at other institutional levels; it is not a commonly-shared thinking yet. Indeed, the strategic plan had not been elaborated at the time of interviews and the Contract-Programme with the government had not been made public.

However, despite the internal contradictions, it was recognised by all interviewees that the university is living the period of institutionalisation and consolidation of the existing revenue generating practices. What has been an individual effort of enthusiastic faculty members during the past 10-20 years is now becoming an institutional necessity, especially with the foundation status and its obligation to generate 50% of own revenue.

> We are organising it [strategy], we are making it more institutional. But the individual component remains, it is the basis. It is not the top management bodies that would do things, things happen and have to happen and the university is an institution different from a company exactly because of that. (TM2)

After conducting all the interviews, the interviewer got an impression that strategic planning is prepared in isolation by the Rector's team. However, it was clear from the interviews that revenue diversification activities are developed and executed at shop floor level. As noted by Estermann and Pruvot (2011), diversification is not a process that can be carried out in isolation or by means of a top-down approach. To be successful, the whole institution needs to be involved and be aware of the purposes, aims and actions pursued.

Differences in the accounts about institution-wide strategy can be attributed to the lack of communication between the central management and the heads of departments. For example, there is no governance body at the university, where all heads of departments would be represented. There are meetings between the Rector and heads of departments but they are more need-based, when solicited by one party or the other[21]. In the words of one head of department:

> I think there is a flaw in the management which is a lack of regular contact with the heads of departments. I think it's a gap in the form of organisation. The university is relatively small, the departments are small, the buildings are all grouped together – so it would not be difficult for a management team or the Rector to spend half an hour with the heads of departments on a regular basis, once or twice per month. (HD6)

In the next section we will discuss the perceived success factors for revenue diversification.

[21] It should be mentioned though that the new Rector has started his mandate by visiting all the university departments, schools and autonomous units with the aim of beginning the dialogue with newly appointed heads of departments and academic and non-academic staff. During these visits the Rector and the head of department establish goals for signing contract-programme between central management and the departments. Communication between the Rector and the community is also promoted through the Rector's web page that includes questions and answers section.

6.4.1.3. Success factors

In the context of shifts in public funding and increasing market-mindedness the ability to generate additional funding arguably begins to differentiate higher educational institutions from one another. It is no accident that the most successful universities appear to be the ones with most resources. Competition for additional income is becoming more intense and those institutions that succeed to capture extra funding will eventually thrive, those who do not, will decline or perish. One of the objectives of this study is to identify what factors contribute to successful revenue generation. In our interview protocol we called them success factors. After analysing the interviews the success factors were subdivided into external and internal ones: external factors refer to environmental conditions, and internal factors are those that depend on the institution itself.

External factors

External factors referred by the interviewees are the economic situation and location. Economic conditions and market demand are thought to be very important for revenue diversification.

> I do not believe that there exists a prosperous university without being inserted into a prosperous region. Therefore, having a prosperous region is an enormous condition for the university' success. (TM1)

> University is just an institution in a country which depends on its surroundings starting from the world economic situation like the one we are living right now, national dynamics in terms of business activity, regional dynamics. We are just one factor and no matter how much good intentions the university has, it is not enough. (HD10)

While economic circumstances are clearly a positive factor for the universities' ability to search for money-making opportunities, the link between these two elements is far more complex. There are examples of entrepreneurial universities that could not boast of favourable economic circumstances at the time of their foundation. The University of Twente, one of Clark's cases (1998), was founded in an economically depressed area near the eastern region of the German border.

Survival required a synergy with the region, aiming to rejuvenate the economy. Now it is one of the success stories among entrepreneurial universities. During an economic recession, it is possible that business companies substitute their internal R&D for (cheaper) contracted research. Due to global mobility among R&D intensive companies, even if local companies are under economic stress, there may be foreign companies that are interested in investing in university-business partnerships. As an example from the business world, a recent study by Stangler (2009) finds that the majority of Fortune 500 companies were started during recessions or bear markets.

To interviewees in the top management positions, a favourable economic situation also meant that the state was able to provide at least 50% of university budget. In their words, this is a minimum budget share that is necessary to keep up infra-structures and human resources:

> What I am going to generate, 50% from alternative sources, has a lot to do with what the state provides in terms of guarantee of infra-structures and even in terms of guarantee of funding sources of [research] projects coming from the state. (TM4)

University location was quoted as another factor that might influence the number of opportunities that might lead to success in revenue generation. Intuitively, it makes sense that location in a capital city or a growing centre of economic activity, a place with advantageous transport access, cultural centre, etc. will positively influence the university success in revenue diversification, i.e. its ability to attract differentiated publics or access outside resources.

> The university has a competitive advantage even by its geographical location (TM2).

As with economic circumstances argument, university location may be important but does not determine the overall success of revenue diversification. In case of UA, geographic location was at the same time a challenge and an advantage. A

challenge – because it is situated between two renowned university centres; an advantage – because a certain mix of local industries presented an opportunity to develop and succeed in certain research fields and offer new study programmes that were different from those traditionally offered.

Internal factors

We also asked interviewees to name organisational factors that they think may contribute to successful revenue diversification. The following internal aspects were mentioned by the interviewees (in order of frequency):

- Quality;
- Institutional culture;
- Support from the university central management;
- Trustful relations with partners.

Quality

Quality has been referred to as a success factor by almost all interviewees at both institutional (top managers) and basic unit (heads of departments) levels. The respondents mentioned the importance of individuals' quality, the quality of research units and departments, the quality of provided services to the community and the quality of the institution.

The quality of human resources is believed to be fundamental for the overall success of the institution and interviewees' perception is that UA has a highly qualified staff:

> I think that the university in terms of human resources is very well endowed. And therefore, without any doubt, this is the principal factor, because here, and in any other higher education institution, human resources are the principal factor. The university has invested in it. (TM4)

> Thinking rapidly, the first [factor] is the quality of people before everything else. This is the first big item. And I will repeat – quality of people. (HD10)

> I usually say that contrary to a firm, a university's capital is not the land where it is installed, not the buildings, not the machines; its capital is its human capital (HD9).

According to the self-evaluation report, 70% of the university's academic staff have a PhD, 16% - Master's and 14% Licenciatura degree (University of Aveiro, 2007). It also states that it has been the university's policy to monitor the quality of its human resources. For example, when a PhD degree was not obligatory for entering the academic career, the university tried to hire academic staff with a PhD degree. It also invested in upgrading the academic qualifications of the existing academic staff by encouraging them to obtain PhD degrees. The report also mentions efforts of internationalising the academic staff and attracting researchers from abroad to work at the university's research units and Associate Laboratories. The research quality of UA can be seen in the international evaluation of research units. As previously mentioned, 75% of research units have been classified as *Excellent* and *Very Good* and there are four Associate Laboratories on campus. The importance of the quality of human resources for revenue diversification, namely, for competitive research income, is emphasised by this head of department:

> The access to funding is very personal. If we look at competitive projects they are evaluated by the quality of ideas. The quality of ideas in research is related to innovation, originality and creativity. It depends on people, on people who tend to produce good ideas, more creative people. (HD 9)

The work environment is a very important aspect to attract and retain academic staff. Results of the study by Lacy and Sheehan (1997) indicate that factors related to the environment in which academics work, including university atmosphere, morale, sense of community, and relationships with colleagues, are the greatest predictors of job satisfaction. In countries where academic salaries are regulated by the Ministry and academics are civil servants, non-pecuniary aspects of job satisfaction seem to be even more important. While measuring

academic job satisfaction was not part of the study and it is not possible to tell whether academics at UA are more satisfied with the work environment than their colleagues at other universities, below is a testimony of one head of department:

> It is instilled in the spirit of the university: trying to find spaces, trying to find solutions for people to be happy inside the university. Then this dimension is achieved when a person thinks: I feel good here! I feel secure and I belong!
>
> Life quality [at the university] is not made just of teaching or projects; it is made of people above all. It is important that people are happy here. We are continuously the first university to offer this quality of life to people: the students, the academic and non-academic staff. This is the best university in the country from the point of view of well-being and happiness of students, academics and staff. (HD12)

The quality of services provided is considered by interviewees to be very important for revenue generation activities. They believe that high quality of expertise distinguishes a university from other providers of the same service. The expertise of the academic staff, up-to-day knowledge of the subject, and the know-how attract external demand for services. For example, a translation office, founded by the university, cannot compete with businesses in terms of pricing in order to avoid disloyal competition. It also cannot raise prices disproportionally. It is the guarantee of quality that attracts outside business:

> Any activity that wants to be sold outside has to have quality, because otherwise we are shooting ourselves in the foot. We can make a lot of money one particular year, but the following year, if we do not demonstrate quality, we do not make anything. (HD7)

However, while quality of research is monitored through evaluation of research centres by the FCT, the quality of the third mission activities does not get measured and the data that is gathered seems to have little utilisation, according to the interviewees. This may change however with the new academic employment statutes which recommend universities to base their internal evaluation process on such activities as research, teaching, involvement in

university management and cooperation with external environment. Each university is free to elaborate internal procedures of evaluation using the above guidelines. At UA the proposed criteria and their weight in the overall evaluation are: teaching - 0%-60%; research – 20%-60%; knowledge transfer – 0%-20%; university management – depending on a professional category, 0%-100% (0% for auxiliary and assistant professors; 100% for positions that require exclusive dedication to university management, for example, the Rector).

Institutional culture

The next most cited factor was *institutional culture*. In Chapter 3 we discussed that revenue diversification activities will not have success if they are not accepted by the academic and non-academic community; and that revenue diversification cannot be achieved through a top-down approach. According to the interviewees, since its outset, UA embodied an idea of a regional university closely linked to the needs of the region and its population. It was also perceived as an innovative university for its experimenting with new study areas, offerings of new study programmes, etc. Interviewees' narratives show that a unifying identity has been created along the years.

> There is a set of factors, some of them implicit that make part of our culture. There are some behavioural factors that nobody describes but that exist inside. Most of our professors are on a contract of exclusive dedication, dedication to university. Therefore a lot of our interaction with society is done with the perspective of bringing benefits to the university. It means that people are not here just for their own interests. It is a bit subjective, but I think that our own culture exists (TM1).

> I think we can say that in our DNA there already exists, is implicit to almost all of our professors, researchers, students, a notion that we exist, we work, or we research, or we teach because in a way we want to contribute to society. (HD11)

It may be added to the above testimonies that collaborative culture goes back to the foundation of the university. As mentioned in historical overview in the

beginning of the chapter, the first study programmes originated from collaboration with the ceramics and telecommunications industries.

Support from the top management

The interviewees mentioned that support from the university administration has been very important for departments and individual researchers. As we have noted previously, there is a reserve of money at the central level that is used to support research projects while they are waiting for transfers from funding entities. This availability of resources is very important.

Another aspect of the university administration support is a decision-making process in terms of new initiatives proposed by the department or an individual. The final contract has always to be signed at the Rector's office. The interviewees referred that decision-making at central level is quite swift and usually all the projects are approved.

> If the project is not wrong or if it's not completely stupid, or completely outside of the university's image, if it is well constructed, I don't know of any case that has been rejected. (HD)

> In terms of central management, I do not know any Rector's team that has not tried to support the connection of university members to the business world, either national or international, either in academic or service provision terms, whatever it was, they always supported us. (HD10)

When income generating activities are not fully endorsed by the university leadership, the risk of failure is higher. Support from the centre is crucial for shaping the institutional culture of acceptance of revenue diversification and thus promoting cultural and organisational change. Sometimes, support means giving more freedom to members of the academy and not to overburden them with regulations and bureaucracy.

> Researchers have great autonomy so that they can act on their own, develop their own structures and pursue their activities autonomously. I think it is a very positive factor. (TM4)

As we may judge from the above quote, the trust placed on academics and their professional integrity in choosing projects for collaboration is quite high. This is positive for developing trust and mutual understanding between administrative and academic sub-cultures. The question remains though how the organisation learns from its local and individual experiences of such collaborations, how successful projects and initiatives get replicated. Later in the analysis we will see that communication within institutions is often being criticised by the respondents, especially in what concerns sharing information on on-going research projects and other initiatives at each department or research unit.

Trust building

Finally, in terms of cooperation with society, building trust with external partners has been cited as a success factor.

> Attitude makes the difference, because things begin like this: establish confidence through small projects, we can speak about the budget of 100,000 Euros, it's nothing, isn't it? But at this stage it is not what is important for us. It is to understand if the confidence is being consolidated or not, so that we can move on to other projects. (HD12)

This trust is gained through interpersonal relations in many cases. Before signing the protocol at the institutional level, the contacts are made by the individual researchers or academics and from this "*personal relation something is born*" (HD10).

> There was a period in 2006-2007 when we did some powerful, almost personal actions with these companies through meetings very much based on personal relations. At first these initiatives were mainly centred at the School's management but then the relationship began to develop, other contacts were made and the network started to form itself. (HD13)
>
> Many people [with whom we collaborate] are people whom I have known for many years. (HD13)
>
> These collaborations develop from different sources, from an informal contact when a person would like to know who can do a particular thing and from here the most relevant things are born, from the department or university Web page, etc. However, fundamentally these collaborations have

> origin in personal acquaintances and individual contact, which makes this type of interventions successful. I do not know any case which does not have a personal contact. Large projects develop from relatively small things. Therefore, I think the most important component is the human component. (HD10)

Hatakenaka (2004) in her work about university-industry partnerships states that developing partnerships is about developing a rationale for joint action. The more the rationale is shared and understood by both parties across boundaries, the more robust the partnership will be. And according to our results we may add that this rationale is developed through personal relations, through successful networking and good communication.

Having looked at perceptions about success factors for revenue diversification activities, the next section will present interviewees' opinions about what constraints these activities.

6.4.1.4. Constraints

As we have seen from the documentary analysis and the interviewees' perceptions, revenue diversification has become one of the priorities on the institutional agenda. There is clearly a move towards more strategic thinking about revenue generating activities. However, as one of the interviewees pointed out there is only as much as universities can do. The normative environment, as well as managerial arrangements, is an important condition for success. In this section we speak about the constraints for revenue diversification activities. The following barriers, which are listed in the order of frequency, have been identified by the respondents:

- Career assessment and progression;
- Cultural differences;
- Lack of information;
- Multiple tasks of academics within the university;
- Staff management policies;

- Financial constraints;

The interviewees' perceptions regarding each type of constraints are presented below.

Rules for career assessment

The rules for career assessment and progression have been cited as one of the major constraints for a larger involvement of academic staff in cooperation with industry, business companies and society at large. There is no tradition, in Portugal, of differentiation in remuneration of the academic staff (such as merit-pay), other than what concerns the different categories of academic staff, salaries being fixed according to these categories and to the number of years of work in each one of these.

At present, in general, most universities assess teaching and learning through a questionnaire that students have to fill in at the end of each semester. However, the use of the data depends on each university and basic unit; in general, institutions do very little with it, although there have been cases when juries of competitions for positions took evaluation by students into consideration while making staffing decisions (Cardoso & Machado dos Santos, 2011).

Actually, an assessment situation occurs only at particular moments centred at public competition for a vacant position or at the end of a temporary contract, to be changed into a permanent one. In all these cases, the concerned individual takes the initiative to produce a curriculum vitae or an activity report for a given period, and submits it to the scrutiny of the Scientific Council or an *ad hoc* academic court at the appropriate time. In these instances of assessment, scientific and pedagogical performances are mainly considered, as well as participation in institutional governance and management. The distribution of importance of each activity is usually skewed towards research performance. In some public competition calls services to society, technology transfer, and industry cooperation are beginning to be taken into consideration, however. According to new academic employment statutes (Decree-Law 205/2009), each university has to establish

staff appraisal criteria for its academic staff members. At the University of Aveiro knowledge transfer received up to 20% importance in the overall appraisal weighting scheme.

Thus, the main driver for an academic career progression has been the research performance. Such activities as consultancy work, contract research for industry or business companies, service providing for local community have had no or very little impact on career assessment, as exemplified by the interviews below:

> There is an area that I think is fundamental that there should be a significant alteration for this question of valorisation [of the service mission] to make sense, that is the question of academic employment statute. (TM11)
>
> From the point of view of a scientific career this type of work [service to community] in many cases does not count in terms of evaluation and thus represents an additional effort asked of an academic…
>
> We are talking about providing services…this line in the curriculum vitae has an absolutely marginal or null value from the point of view of public competition evaluators. (HD13)

According to the interviewees, the incentives for the involvement in consultancy work or projects with industry and business companies are usually of two kinds. There is either a strong financial motivation, even to the detriment of one's academic career; or, for career focused academics, a possibility to gain visibility for their research, opportunities for their students, provides connections for further collaboration or opportunities for testing their theories. As previously mentioned, the academic employment statutes have been recently changed, but as with the reform of the legal-juridical system of higher education, the consequences of this change are yet to be seen.

Differences in academic and business cultures

The objectives of the knowledge society demand a closer cooperation between higher education institutions and business companies. It is thought that through technological innovation and knowledge transfer universities will contribute to

regional and national economic growth. There are several advantages of such cooperation, namely the positive “spill” of knowledge produced in universities into the larger society; creation of new businesses; additional funding for universities; employment opportunities for graduates. However, these outcomes are not always easy to obtain. Successful cooperation between industry and the university requires a special kind of synergy. To achieve a successful cooperation agreement, both parties need to be aware of each other's interests and objectives as well as each other's complementary strengths. The interviewees in our study have mentioned the importance of such awareness:

> Some academics want a perfect intervention. A perfect intervention usually bypasses the needs of companies and therefore there is a misunderstanding and a mismatch of expectations between the actors. It leads, from the internal and the external point of view, to a certain devaluation [of cooperation]. (TM1)

> I believe that what we do not yet feel from companies is treating this relationship with a certain humility and sustainability. The companies have many problems and come very biased, money-oriented to be able to pay salaries and support the company. (HD12)

There are also intrinsic values embedded in each sub-culture. The university scientist uses a long-term approach to research and is devoted to academic freedom and publication. Faculty members are typically concerned with career progression and salary increases based on merit. In some academic departments, applied research may not be rewarded as much as teaching or basic research. The benefit of collaborating with university researchers is fairly clear to business and industry. However, the industry culture emphasises applied research, secrecy, protection through patents and typically employs a product-driven approach. The interviewees recognised that there is an invisible boundary that separates the two worlds:

> Sometimes it may not be compatible. I can get money through business and at the same time do research with them. They do not like it very much, they want results for yesterday, very fast things and science is something that takes time, it has a very special pace. (HD16)

Another opinion that interviewees have about cooperation with business environment is a perceived lack of a research culture in small and medium firms, which represent the major part of the Portuguese economy:

> The Portuguese society is not prepared to finance education, the training of its staff. American models are very interesting but in Portugal maybe 30 years from now the society will get there. (HD13)

It was recognised by the interviewees though that despite cultural differences universities and business companies are moving towards each other. There is an understanding that practical and theoretical knowledge can and should complement each other. In the words of one of the interviewed “the gap that existed in the past is beginning to narrow a little”.

Lack of information

Poor circulation of information regarding funding opportunities has been pointed out as another constraint:

> There are various competitions at the international level. I am sure that many researchers do not apply for them because they are not aware. (HD10)

This constraint has also been noticed at the macro level. The interviewees at the top management level pointed out to the lack of guidance from the state. In their opinion, some of the government programmes and initiatives seem to have short-term objectives intended to have an immediate impact on international comparisons and compliance with the Lisbon strategy goals. For example, between 2006 and 2008 there was a government initiative (OTIC) that enabled the creation and maintenance of technology transfer offices.

> This is an example for us to see the Portuguese strategy. In Portugal this was the programme that initiated in 2006 and ended in 2008. And from then until this moment there have not been any initiative, incentive, support, -

> anything! In Spain, for 20 years this part has been going on continuously, supporting these activities and actions. It tells everything. (TM11)

The same was pointed out about regional cooperation:

> For all these challenges of thinking the university's global and balanced strategy there have been neither support, nor a specific framework worked out by our Ministry, that would say: these are our options for this or for that reason and for those who want to go this way there are these kinds of support. And directly or indirectly this would help to draw attention by creating additional resources and incentives. We have practically nothing and this is bad for the pace of relationship one would expect between university and the surrounding region (TM1).

The interviewed top managers feel that the government rhetoric regarding the promotion of a knowledge society is not consistent with the reality at the ground level. On the one hand the universities are encouraged to get involved with the larger community, on the other; there are no clear guidelines and incentives for them to do so.

Time constraints and bureaucracy

It can be argued that the efficiency of revenue generation activities depends on the availability of university academic staff for scientific and technological activities and the efficiency of the university research. The lack of time for third stream activities due to an overloaded schedule and multiple tasks was cited as another constraint for revenue diversification.

In public higher education, the full-time regime amounts to 35 hours per week, divided between classroom sessions (from 6 to 9 hours per week for university teachers and 6 to 12 hours for polytechnic ones), research, administrative tasks and services provided to external organisations. The use of the working hours is usually a matter regulated in practice by the institutions. Despite the prescriptions of the law, it is not uncommon to find, for instance in universities, some academic staff who teach more than nine hours per week and some others who teach less

than six hours per week. This is normally a result of arrangements that are decided internally (Soares & Trindade, 2004).

The interviewees in middle management positions referred to being overloaded with management tasks that leave very little time for other activities:

> From the individual point of view it is very complicated and as I have referred before, in particular management roles start to have a great degree of importance in relation to multiple tasks one has to do. This is negative. It is rarely positive. (HD9)

> There are multiple internal tasks and therefore this is a limitation [for developing third mission activities]. (HD10)

Staff policies

Several interviewees, particularly from the "young" departments that are trying to build their research base and reputation referred to internal staff policies as a constraint. According to them, the problem is that due to public budget restrictions, the opening of vacancies, both for hiring and promotion of the faculty has been severely limited. Moreover, career progression, as mentioned above, has a rigid structure and depends on vacancies usually created by professors' retirement.

> If there were more of us, we would have more capacity to do things. Like this we are a bit limited, we have to go slower and try to prove ourselves, that we are capable of doing things… (HD5)

> We need the central administration to help us recruit new people who are dynamic, who would pull projects, would move, and would bring good contacts. This is how I would imagine it. Two or three people would help a lot, would realise these plans. We are becoming old [laughs] and the dynamics go down. (HD6)

It has been repeatedly mentioned by the participants of the study that the quality of human resources is the key to success for research excellence and cooperation with society. Faculty members bring in new ideas, a new work culture, industry and business contacts and research partnerships. Therefore the flexibility of the

academic career, the possibility of academic staff circulation between institutions seems to be a crucial aspect.

Financial constraints

Another challenge for university research units relates to high levels of uncertainty in obtaining financial resources from both private and competitive public sources, which negatively affects the establishment of medium- and long-term scientific agendas, attraction of human resources and in some cases — in the experimental sciences — the maintenance of conditions to develop research and teaching activities (Horta, 2008). This finds support in the words of this head of department:

> It is necessary to have investments, to have equipment. If there is no equipment, what can we do? Say – Look, I have to go to a friend's laboratory to do [the service]. We cannot do it, can we? We are very conditioned in this respect. To buy equipment nowadays is very complicated, only through research units or special investment programmes. (HD6)

In the following section we will present interviewees' perceptions about the existence of incentives for revenue diversification.

6.4.1.5. Incentives

In order to increase the commitment of the academic staff to revenue generation activities, a set of incentive mechanisms has to be in place. Until recently the institutional ability to devise incentive mechanisms, especially pecuniary ones, has been quite limited. There also appears to be different types of incentives for research and third-mission activities.

In the interviewees' opinion, research activities are rewarded by advancement in the academic career. For example, the number of PhD and Master's students, participation and coordination of research projects give points for career progression. Research activities also bring indirect monetary benefits. Graduate students' tuition fees and research projects funds are held in academics' cost centres and can be used for conferences, equipment, books, etc. Access to

competitive research funding gives an opportunity to pursue the line of research a particular academic is interested in. Additional resources provide more freedom and security:

> Being a principal researcher of a project has implications for the academic career; it lets the researcher produce more publications, put on the CV that he or she was a principal researcher, supervise more people, - there is a set of incentives that are not direct but are at the side and also serve for it [motivation]. (HD9)

As to direct incentives, it has been acknowledged by the interviewees that there are no bonuses and shared overheads as in American universities, for example.

According to the interviewees, the main reasons for academic staff members to participate in service provision and consulting are personal interest, enthusiasm and the matter of visibility of one's work.

> I think on the one hand, it is the visibility that one gets. The person has visibility, is interested in participating in research and cooperation, because it gives him visibility and people need that as well. (TM4)

In case of valorisation of patents, i.e. finding companies that might be interested in the invention, negotiating the contract with them, etc., there is a distribution of resources according to the internal regulation of the university. If the researcher or research team does not participate in valorisation of the patent, but just hand in their invention to the Technology Transfer unit, they receive 30% of the value and the university receives 70%. If there is greater involvement on the part of the researcher, the distribution of revenue is the reverse: 70% for the researcher and 30% for the university.

Thus, according to the perceptions of our interviewees, the major factors that motivate academics to participate in revenue diversification are intrinsic ones, namely pursuit of excellence, recognition, prestige, freedom of research. It is almost a professional characteristic to pursue initiatives "for the sake of it",

because it is intellectually rewarding.

Using the interviewee's perceptions, the next section will present the influence of revenue diversification on the university's structures, as well as perceived risks and opportunities.

6.4.2. Influence

Changes in funding arrangements have led to changes in governance and management structures of higher education institutions. In Chapter 2 we presented these changes which in broad terms constituted a shift from the government control towards more accountability to society and involvement of external stakeholders. There has been also a shift from collegial management towards more corporate management. In this section we are looking at the perceptions of top and middle managers of the influence of revenue diversification on institutional structures and on institutional core mission.

6.4.2.1. Structure

The major organisational change reported was the recent change in the legal regime of higher education institutions (Law 62/2007). By imposition of this law governance structures have changed as mentioned earlier.

In practice, this means that the Rector has acquired increased managerial powers; he is supported by a very small (3 members) management group (Management Council) that conducts administrative, patrimonial, and financial as well as human resources management. The Rector has a vast range of competences.

There has been also a shift towards more powerful heads of departments. The position of the Head of Department has an exclusive dedication on the part of the person in charge, though he or she may continue to perform teaching and research. More administrative and managerial powers are given to departments. They will be responsible for day-to-day operation of the department, namely utilities and non-academic staff.

> It is obviously necessary that departmental and schools' structures have their strategies aligned with the university. Now according to the Law there is this concept of a head of department which is elected slash nominated, who has his strategy synchronised with the Rector. (TM2)

It has been noted by some interviewees that a flat structure, without an intermediary faculty or school structure is generally beneficial for decision-making inside the university. In the flat management structure there are no deans; the departments and research centres have direct contact with the centre. However, in the interviewees' opinion, the one-on-one relations between the Rector and the head of department may present a possible problem when there is a controversial situation:

> When there are only two or three elements in the decision-making chain, - from now on only two, Rector and head of department, - the exchange of information is much faster, the adjustment of ideas is much more faster and therefore things can advance easier and faster. However, it is obvious that if one of these two elements blocks the initiative, it is just worse, because there is no third element to resolve the dispute. (HD 7)

Another structural change reported by the interviewees concerns the broadening focus of university operations:

> In organisational terms this relation with the external environment has been changing in a positive way. It has always been promoted on the individual bases, now it is promoted at the institutional level. (TM 2)

In order to respond to all the external demands, outreach structures are created that are able to develop new competences and concentrate more on problem solving. Among the changes in organisational structure the emergence and development of interface structures was the mostly cited change. In 2007 a pro-rectory for regional development was founded and in 2004-2005 the Technology Transfer Unit was created.

The creation of a technology transfer unit is seen to be a positive influence on the greater interface with businesses and the external environment:

> Well, we have nowadays two lines of action. One is through our technology transfer unit which is turned more towards hard technology and works more with business companies. It acts as a bridge between our research units and departments and companies. Associate Laboratories have their own mini technology transfer units but they collaborate with the central one. (TM1)

> We have a support structure, which is a technology transfer unit which dedicates itself to valorisation of knowledge, selling the knowledge to business companies. We are making the first steps in a more organised, more structured way. I think that this valorisation of intellectual property will increasingly represent a significant share in the income structure. (TM 3)

> The technology transfer unit encourages in a certain way the departments and schools to generate their own revenue, namely in what concerns the cooperation with society and with businesses. Last year it organised a forum where the university opened up to business firms, both regional and national, where they found out more about what is being done at the university. After this forum we got some cooperation projects. I think this type of initiatives is very important. (HD15)

The technology transfer unit is central to the whole university. It is situated in the Rector´s office and is supervised by a Vice-Rector responsible for university-society cooperation, innovation, technology transfer and postsecondary education. It covers three major areas: entrepreneurship, intellectual property and innovation. From these three areas the intellectual property area is the one that has been explored recently. It is the competence of the technology transfer unit to analyse the patent, analyse the market, the companies potentially interested in its commercialisation, and to proceed with licensing of the patent. The interest is primarily in international licensing. At the time of the interviews, the technology transfer unit was reported to have over 35 international patents. In terms of entrepreneurship this unit promotes various initiatives for students, academic staff, organises open days and training seminars. In the area of innovation it brings together enterprises and university research units for cooperation projects externally funded.

In the words of the director of the technology transfer unit, it has made a long way in terms of acquiring the necessary skills for knowledge valorisation and commercialisation and is still continuing to build its capacity through training of new “knowledge managers” and international internships.

> It is something very complex. It is something that requires to have a grasp on the technology that is being analysed, a knowledge of the market, management skills, financial and economic skills, interpersonal communication skills, negotiation skills, let alone the knowledge of legislation, even though it is not us who will write the contract, we have to be able to tell how the contract should be elaborated. Here there are seven or eight characteristics that we would have if we had seven or eight people working together, but a knowledge manager has to have them all. (TM 11)

Another organisational change that stands out in the interviewees’ point of view is the business incubator. It was founded around 11-12 years ago and about 2 years ago it was transformed in what has been called by the interviewees, a business incubator network. The transformation into this network format was due to two factors. First, the university’s capacity to host all the willing companies began to be surpassed. On the other hand, local authorities started to demonstrate an interest in the idea of business incubator and wanted to organise something similar themselves. These two situations gave rise to cooperation between the university with its already available services, networks, credibility and the municipalities who could provide the necessary space for new businesses.

> We now have an incubator not only here at the university but an incubator that has a presence in different municipalities. At present, there are four that have gone forward already. This is a gradual process, because the creation of space and acquiring equipment requires money, and then there is also a need to create programmes. But it has to be encouraged. It is an institutional change in terms of organisation and functioning. It has mutual advantages: the university wins because it has alternative spaces; the municipalities win, because if each municipality would organise its own incubator, it is unlikely that it can provide conditions, networks, expertise that we have here at the university. (TM1)

The most recent and a quite ambitious project is the creation of the Science and Innovation Park which is supposed to be finished in 2013. Its objective is to connect different knowledge expertise within the university with the business enterprises and also to help regional and national businesses to internationalise with the help of the existing networks at the university.

> There is a conviction that this Park does not belong to the university only. On the contrary, it belongs to many other regional companies and municipalities. It will stimulate the university development because it will promote innovation; facilitate the relationship with the business companies, it will help the businesses to obtain more customised training and benefit from the professionals of the Park in internationalisation process. (TM1)

The Park is going to host hi-tech companies, business' research units, business incubators, research and development centres, and advanced training entities. It will be composed of three major parts: scientific, experimental and business. It will be managed by a private company where the university will be the major shareholder, with a 30% share.

It is very premature to speak of any impact that this initiative will have on the regional and national economic development, as well as the contribution to the university's income streams. However, one concern was pointed out by an interviewee:

> We have a great challenge ahead of us, which is the Science and Innovation Park. In my personal opinion, we have to be very careful with what we are going to do. I hope that the chosen strategy is the best strategy and we will not fall into temptation of having another conglomerate of buildings that has little to say. Because the Portuguese are very good at this: there are many incubators and congress centres that nobody ever visits or uses. Therefore, I am a little bit cautious of these initiatives that involve millions. But I think for the university, for its uniqueness, it is fundamental [construction of the Science and Innovation Park] (TM 11).

The growing involvement with the external environment influenced the organisational structure at the departmental level as well. Several basic units were

reported to establish special posts, such as a coordinator of cooperation with society and create special departmental regulation which manages the cooperation with society within the department.

When we spoke about changes that occurred in the past ten or more years, the interviewees could not help but point out the organisational changes that they think are desired for the better interaction with the outside environment. There emerged several areas where improvement in the organisational structure is perceived to be necessary.

First of all, the question of image is seen to be very important. As we were able to see from the Rector's Action Programme, this issue is identified as an important one for promoting the institution's reputation. To Shattock (2003), the universities which have acquired high reputation can attract better students, they can capitalise on their reputation by generating interest in their students from employers; they will recruit better staff and will retain loyalty of the existing staff. Reputation brings all kinds of intangible benefits; it creates strategic advantage. However, few universities treat the question of marketing proactively. Therefore, it is not surprising that image promotion is seen to be the area that needs more development:

> Another dimension that has not changed much yet can be called marketing, which is the presence of the university in other spaces, its visibility. It is interesting, because it is another aspect of the institutional change. (TM1)

> For example, the thing that I think is sad is that one of the most effective forms of promoting the university image is through its Web page. Our web page is not in English. How can we attract international students? (HD9)

Information management is another area where, interviewees feel, more work is needed. Despite the increasing amount of information that universities gather now, not all of it is used for decision-making. Additionally, the third mission activities are the ones that are less monitored (University of Aveiro, 2007). According to the interviewees, the information about consulting and development contracts is aggregated and it is difficult to make a well-informed analysis of these activities:

> There have been cases when we had service provision contracts which were really technology transfer contracts or vice-versa; or we had research and development contracts masked as technology transfer contracts and so on. There is always some “grey” zone that can be caused by numerous factors but it is there and it makes it difficult for us to say that we have this number of licensing contracts, and this number of technology transfer contracts, etc. (TM11)

There is also an apparent misuse of information about research projects:

> I think a greater articulation is needed in order not to do things that are almost repetitive. And I know that it has happened that the university was applying [to grants] in similar fields but with different people from different departments. (HD5)

Income diversification in a university context requires a high level of professionalism and a network of support services with highly qualified staff (Estermann & Pruvot, 2011). With high demands placed upon academic staff in terms of quality of research, scientific production, teaching duties and management tasks, there is no time left for them to be aware of every opportunity that emerges, for multiple grant writing, for updating their administrative skills. This has been confirmed in the interviews:

> It would be advantageous to create an office for management of international projects that would be able in some way to filter what is important for different researchers within the university and transmit this information, and teach the researchers and help them take their projects to other competitions. (HD10)

European projects are seen as especially complicated to apply for:

> Portugal does not attract many European projects yet. There are not many researchers who can use international teams and from that generate income, if we compare Portugal to the countries of similar dimension, similar type of research and similar quality.
>
> Therefore, as part of my responsibility, I want to have people connected to this question of internationalisation. To have one connected to Brussels who would be very attentive to all types of calls [for proposal] and then would

> have information sessions here with the heads of research units. (TM 8*)*

Therefore, developing professional capacity to manage international projects is seen as another desired organisational change:

> It will be advantageous to create an international projects' management office which would filter what is important for different researchers and circulate this information, but most of all teach the researchers to take their projects to other competitions. (HD10)

6.4.2.2. Risks

In Chapter 3 we discussed the risks and limitations of revenue diversification. The essence of these concerns is captured in this speech of Harvard's current president, Drew Faust:

> The essence of a university is that it is uniquely accountable to the past and to the future – not simply or even primarily to the present. A university is not about results in the next quarter; it is not even about who a student has become by graduation. It is about learning that molds a lifetime, learning that transmits the heritage of millennia; learning that shapes the future. A university looks both backwards and forwards in ways that must – that even ought to – conflict with a public's immediate concerns or demands. Universities make commitments to the timeless, and these investments have yields we cannot predict and often cannot measure (Faust, 2007).

The demands to blur the boundaries between the timeless and the immediate are perceived to present some risks to institutional integrity and mission. The interviewees identified several of such risks:

- Valorisation of applied vs. fundamental science;
- Waste of talent;
- Short term advantage;
- Becoming a service provider;

- Economic risks.

A concern has been voiced by the interviewees that if pushed too far, commercial projects can jeopardise the basic scientific research. Though the majority of respondents did not name it as an existing risk yet, they referred to it as a potential risk that may appear:

> If we are pressed too much to raise revenue from now on, I am very much afraid of doing only applied research. (HD5)

These concerns came predominantly form the heads of departments in social sciences and humanities. Their opinion was not shared by the interviewees in top management positions:

> I think there is no such risk. The incentive to do basic research is much stronger because funding for this type of research is more readily available and requires less effort to acquire. By less effort, I mean, it is easier to access; researchers have to compete for it, but it is there, it is available. It is a different story for cooperation with industry and society at large. The researcher has to reach out, business companies are not very focused on this type of cooperation, they are resistant, and therefore, it is more difficult. (TM4)

> Disinvest in basic science is a certain death. Therefore, if a university knows what it is doing, this would not happen. Moreover, those who stop doing basic research would be only selling services and would not last more than five years. At the end of five years they are obsolete. (TM14)

Other heads of departments advocated for a balanced mix of basic and applied science:

> There has to be a mix of basic and applied research. I would not say that it should be 50%-50%, maybe more than 50% for applied research because we need more applied research to revive the economy. At the same time, I would not ignore basic research because this type of research brings maturity and can bring greater fruit in the medium, long term. (HD15)

Another risk that was mentioned is the “waste of talent”, which means using highly qualified academic staff for resolving less intellectually challenging problems, in terms of service provision, for example.

> Because a request for a service or for a R&D contract sometimes can degenerate, I put degenerate in quotes, in the exercise that is not stimulating from the intellectual point of view and that could be very time consuming, and that is using a resource, let us say, a highly qualified human resource to resolve problems that could be very well resolved at another level, through technological centres, different industrial sectors that exist… (TM3)

Some interviewees argued that the necessity to generate revenue may also push universities and individual researchers towards projects that give immediate results. The quality of such research, in their opinion, may be jeopardised. With the current research funding structure the researcher is obliged to apply for several projects at once, because his funding is not guaranteed (it is guaranteed only for the duration of the project) and, naturally his attention and dedication is dispersed.

A few interviewees also expressed their concern that the university may turn into a service provider:

> The risk for me is that we are some kind of service providers, or in other words, like private institutions that only provide services and this horrifies me a lot. (HD5)

However, we noted that there is a belief on the part of the interviewed in the learning capacity of the university:

> During more complicated times there can be a risk to go a little bit this way [service provision], in one particular year this could happen, after that there will surely be a return to normal, because clearly there are three big things, university missions, therefore it will never be possible to overestimate one of them in order to mute completely the others. (HD7)
>
> Somebody once said that one of the characteristics of the university is free thinking. Therefore, I think that it would be very difficult that the university

> would transform into a business company with only managerial objectives. (HD10)

Therefore, the role of history, tradition, norms, and path-dependency cannot be overlooked while speaking about revenue diversification. Public policy should bear in mind that higher education is a special institution that cannot conform to the same rules as other organisations.

6.4.2.3. Opportunities

Revenue generation activities can also bring opportunities to higher education institutions, such as additional resources, new opportunities for graduates, new research opportunities and contacts. Being in touch with the external environment is also advantageous for developing new courses that would be attractive to students in terms of their future employability:

> It is an open channel for us to transfer knowledge and share our ideas. (TM3)

Income generation provides the margin for improving the quality of equipment, infra-structures, and study conditions for students. As Weisbrod et al. (2008) state “no margin, no mission”. If higher education institutions do not pursue revenue they cannot survive. The noble social goals cannot be achieved without financing:

> Money always creates new opportunities, as an opportunity for quality improvement or attraction of researchers. (HD10)

In the following section we will present the interviewees’ perceptions regarding the context in which revenue diversification activities take place, namely, in relation to the state, the society and the university itself.

6.4.3. Context

The context in which higher education institutions operate has changed

dramatically over the past years. We described funding changes in Chapter 1. We demonstrated that from financial control over higher education institutions the state has shifted to giving more managerial freedom but also exercising more control over provided resources and especially the results. The changes in the external resource environment produced various responses at organisational and managerial levels of higher education institutions. These responses were described in Chapter 3. The most wide-spread model that serves to show the changes that have taken place within universities is the model of the entrepreneurial university. The entrepreneurial university is characterised by its pro-activity, its distinctiveness and assertiveness. It is also open to the outside world, to new modes of thinking and doing things.

In this section we are looking at the interviewees' perceptions regarding state, society and institution in terms of their roles in revenue diversification. We describe changes in attitudes, conditions, and rules for revenue diversification.

6.4.3.1. State

The changing role of the state vis-à-vis higher education has played an important role for revenue diversification at higher education institutions. Funding changes have powerfully influenced the university responses to seeking additional resources. The main changes pointed out relate to diminishing state funding to higher education institutions in relative terms and the increased funding for research available on a competitive basis:

> A certain type of research is being supported, based on quality criteria, which is understandable. And there is a decrease in funding for a set of tasks which obliges the university to search for additional funds if these tasks are to be carried on. Therefore, in the past years universities have been pushed to the necessity of looking for alternative funds. (TM1)

> There is much more access to competitive funding, both from competitive projects of FCT and AdI (Innovation Agency), as well as from projects funded by the European Union. Thus, in relation to the past if not ten years, but definitely, 25 years, the situation has changed radically. (HD9)

The policy direction towards more support to research while laudable per se is felt to be discriminatory of the teaching component of university mission:

> There has been a separation between research and teaching and the priority was given to research. While I do not see any harm in priority being given to research, it seems to me that the majority of research is done by universities and I see harm in a funding imbalance between higher education and research and disassociation of those who manage funds and those who define the priorities. I think this causes difficulties at the institutional level. (TM2)

From the organisational structure perspective, it is important to understand that within one department there are two types of management structures which sometimes do not overlap. There is a head of department who manages the budget allocated centrally, plus additional revenue from tuition fees and overheads if there exist any. With these resources they run the department and are responsible for its day-to-day operation. At some departments there is a head of a research unit who manages the research budget which is allocated directly to the unit by the Science and Technology Foundation. Other departments do not have research units; their academic staff may belong to research units located in different departments, or even other universities. Under this organisation the role of the Rector's team in influencing research policy is quite limited. To address this situation, the new legal regime opens a possibility to integrate research units into the existing management structure of academic units. Creation of a Doctoral school by UA is also dictated by a greater need to coordinate the research activity.

The interviewees noted that the state strongly stimulated research production through making available various competitive funding schemes via intermediary agencies such as the Science and Technology Foundation and the Innovation Agency. However, funding diversification is not only revenue from research contracts. Another important stream relates to the service mission of the university. In this respect the role of the state has arguably been far less significant. It is felt that while cooperation between university and society is high on the agenda a regulatory framework for this cooperation is missing, probably

meaning that there are few opportunities for state funding.

The expectations regarding the funding from the state budget in the future are quite pessimistic. It is generally expected that the core funding will not grow and might even decrease. It is understood that universities will have to look for additional resources more actively if they want to maintain quality and be able to fulfil their missions:

> I would not be surprised if the state would increasingly try to decrease its participation [in higher education funding] to force people in a way to search for other funding sources. (HD8)

At the same time interviewees recognise that state funding is a fundamental ingredient for the financial health of the institution. As mentioned earlier for the development of revenue generation activities the core funding that supports infra-structure and university staff is essential, especially because a full-costing system has not been implemented yet.

> If the 50% from the state budget do not come it will be the end, because income from other sources varies from year to year but it is never enough… (HD7)

> The university must increasingly invest in external services; it cannot count on the state very much. (HD6)

6.4.3.2. Society

There is a shared perception among the interviewees that in the past 10 years or so university and society in general terms have become closer and more open for cooperation.

> From my point of view the image of the university in general has been improving, I am not speaking of the Aveiro university because it is a little bit closer to business enterprises, in the same way as businessmen have understood the importance of the university and are closer to it a little bit. Therefore, the gap that existed in the past is getting smaller. (HD13)

The economic context requires from the business companies a greater internationalisation and sophistication of processes and products. Theoretical knowledge produced by the universities can help business enterprises to increase their competitiveness.

> For example, in the north of the country and here in the centre small and medium enterprises face the challenge of exporting, trying to establish their position and win international markets. At the university we have a global network and therefore it makes sense for us to work together, because the university has an advantage over others. (TM1)

> Today we have a more positive situation, much more propitious for the strengthening of this relationship in comparison with what was some years ago. There is a greater awareness of global challenges such as energy, climate alterations, etc. There are many town mayors assuming this as a challenge. There is an understanding that the sea is a subject that requires a strong scientific contribution, that food and health have to be related and scientific knowledge is needed. Therefore there is a more propitious environment for the creation of this relationship [between university and society]. (TM1)

The development of a successful relation with society at large is perceived to be a lengthy process. The difference between business and academic cultures can be overcome with time and by trust building:

> The relationship between the university and the surrounding community has to be built with time, with gaining mutual trust and respect. (TM1)

> This is a question of time, of trust with the business firms. You cannot just knock on a company's door and expect that this is it. There is an issue of people and their trust, and the institutions are made of people. Therefore time is needed [to build this relationship]. It is obvious that those that have been dealing with the companies longer managed to build this relationship. (HD12)

However, despite the improved relationship between university and businesses and the increased cooperation, this relationship is mainly restricted to service provision, something that would bring a guaranteed return for companies.

Sometimes university is still seen as a “cheaper” alternative for services. According to the interviewees’ opinion, most business firms do not have a strategic thinking yet in terms of their relationship with university:

> When we are speaking of small and medium businesses, the educational function, investment in professional training is not on their agenda, neither short, nor medium term. (HD13)

> The university has to “attack” companies for them to become patrons of the university. Here lies the difficulty. Companies pay for services because the price is less or the same as in the market but they have a quality guarantee which is given without them being preoccupied with evaluating this quality. This service provision is a relatively easy activity. (HD 7)

In many instances business enterprises do not even know what universities can offer, what advantages they can bring:

> It does not surprise me, because universities have not been exploring this terrain. Many of our principal agents have little idea about how science can help them. I did several projects with businessmen and local authorities and they would ask me – What is it that the university does? (TM1)

We have also found that the university-business relationship is not taken for granted by academics. Several respondents pointed out that a more proactive stance has to be taken:

> I am convinced that the biggest challenge is to empower the region to use scientific and technologic knowledge and prepare the university to be able to respond to the region’s demand in the most efficient way. (TM1)

6.4.3.3. Institution

The fact that UA was one of the three institutions that adopted the public foundation status is in itself an important indicator of the institutional context favourable to revenue generation. It also suggests that the university possesses a risk-taking culture, a necessary ingredient for entrepreneurialism. It has been

recognised by the interviewees that since its foundation the university had a regional outlook:

> UA is a university whose origin is marked by the region. (TM1)
>
> I think that UA would not be what it is today had it not won from day one the support of the region and had it not grown in harmony with it. And it knew how to do it. There are always problems but what prevailed and what is left, was the good relations, relations of good faith and mutual support with the surrounding agents. Fortunately, this is how it is. I think there would not be a university if since the very beginning economic agents, municipalities and local power had not been with us on this project of the university. There should be harmony and articulation". (HD12)

The fact that the relationship with the region started right from the foundation of the university is seen by the interviewees as very important. As we have mentioned before, the success in university-society relationship depends on mutual trust between all agents involved and this trust can be only gained with time, through numerous collaborations, joint projects and initiatives. Time is necessary for building a base for successful collaborations that would bring monetary benefits in the future. During its 36 years of existence the University of Aveiro reached the 50% volume of own revenue only about 6 years ago. This increase in the proportion of own revenue can be partly explained by the increase in tuition fees from the academic year 2004. However, another part can be attributed to mature relations with local enterprises.

Two organisational characteristics seem to have contributed to the university's financial health, according to the interviewees. First, it is a centralised structure and all revenue being collected centrally. In the words of one of the top managers "what makes a difference for accounting balance is that there are no basic units at the university with an independent financial management". It can be argued, however, that one cannot classify centralisation or decentralisation as effective or ineffective. Each form has its advantages and disadvantages. For example, in the case of UA, the size and the fact that departments and other services are located on one campus may have favoured centralised organisation. For a larger

university a centralised structure could have produced more bureaucracy and proved inefficient.

Second, a flexible organisational structure helped the university adapt to changing funding conditions. Its matrix structure allowed for optimisation of resources and avoiding unnecessary expenses.

> Some universities have been systematically disadvantaged in terms of funding from so many changes. Why? Because well-established universities with an inflexible organisation did not have the same capacity to adapt themselves to new constraints unlike the universities with a more flexible management. The greatest strength that we have is the matrix structure. We do not have independent faculties and we do not have duplication. We work a lot by complementing each other and creating synergies. (TM14)

> It has always been a university that from the point of view of its internal organisation always responds quickly. (TM2)

Besides the organisational structure that has created, according to the interviewees, a favourable context for revenue diversification, it is the university's sense of opportunity that has been helping it to navigate in a turbulent funding environment. Many developments and initiatives started before the need for additional revenue became critical. The university was also able to mould its educational offer towards regional and market needs. For example, five programmes in the Languages and Cultures Department were closed because they were not attracting students. These programmes were substituted for more applied ones that were thought to give better job opportunities to graduates. Similarly, courses in physics and chemistry were rearranged.

While this position can be criticised by the liberal education defenders who would like to see the university giving a well-rounded classical education and not professional "training", the university openly assumes its position and occupies its niche in the national higher education landscape.

> UA is known for its concern with students' employability and adapting educational offer to regional needs. (TM14)

Students are seen as a vehicle for promoting the image of the university and liaisons for future contacts. It was proudly mentioned by one of the interviewees that UA's students are the most satisfied ones with their institution according to a study conducted at CIPES (2006).

The attention to market tendencies is seen as an absolute necessity for the future institutional development. While the prevailing discourse is that mission activities should predominate when considering cooperation with business companies, industry or local authorities, some interviewees, especially at the top management level, expressed the idea that economic thinking about university activities is necessary.

> It is now very important without any doubt to direct our researchers, our academic staff, our students towards what the market wants the most, what society wants the most. (TM11)

> If we want to develop certain initiatives we have to start thinking in the way for them to be rewarding from the financial point of view as well, so that we can take our ambition to another level, the one that has not been possible because of the lack of resources. (TM1)

The perception about the future of the institution regarding the funding sources is that it has to be more aggressive and more proactive in terms of seeking new revenue sources.

6.5. Summary of the Findings

Data analyses at the University of Aveiro demonstrated that income diversification has acquired great importance in the past several years. The process of looking for other than government block grant funding sources is thought to be crucial not only because it brings in additional financial resources, but also because it makes university go further in order to fulfil its multiple missions. The main pressure for diversifying income sources was named to be the insufficient state funding. In the

second place, the interviewees cited market forces in the form of increased competition for students and research grants.

Despite unanimous understanding of the importance of income diversification, UA has not got an institution-wide strategic plan regarding these activities. Some strategic directions are given in the Contract-Programme and Rector's Action Plan, but there is a lack of well-communicated goals, targets, deadlines and means for their achievement. Moreover, strategic goals in relation to income diversification activities are perceived differently by top and middle managers, which indicates poor communication between different institutional levels.

Despite this miscommunication, the interviewees reported high involvement in income diversification activities and showed motivation for looking for additional sources of income. As the interviewees explained, this internal understanding and unity of goals can be explained by historical factors, namely by commonly acquired institutional values that constitute a shared institutional culture.

Among success factors for pursuing income diversification activities, interviewees mentioned both external, such as favourable economic situation and location, and internal factors, namely, quality of human resources, research and services; organisational culture; support from the top management; and trustful relations with external partners. In the opinion of the interviewees, UA possesses all internal qualities, especially organisational culture propitious to income diversification and trustful relations with external partners, built over a long period of time. As to the question of quality, the interviewees wished that third stream activities would be also evaluated and taken into consideration in career advancement. According to the respondents of the study, this would create additional incentives for them to get engaged in income diversification activities.

In relation to constraints that inhibit the successful development of income diversification activities, the interviewees mentioned: rules for career assessment and progression; differences in academic and business culture; insufficient information about funding opportunities; lack of time due to the increased bureaucracy; staff management policies and financial constraints. According to the

respondents there are more external barriers to income diversification than internal ones. It was reported that the lack of career incentives for third mission activities; performance based monetary rewards; extensive bureaucratic burden; and insufficient funding for core activities are factors that negatively influence UA's ability to engage even more in income diversification. The interviewees also expressed their preoccupation with the current economic climate, which in their opinion may slow down private investment in higher education.

As to the changes of the governance structure, they were mostly imposed by the requirements of a new law. At the time of the study, it was difficult to assess the impact of these changes but the interviewees saw them as positive. The strengthening of the role of heads of departments and the fact that they would be nominated by the Rector was thought to enable top and middle level to align their strategies and improve communication. A wider participation of external members was also regarded as a positive development.

The interviewees also considered the flat structure of the university, without faculties, as a positive factor in the functioning of the whole institution. They also think that the infra-structure that was created to support cooperation with society plays an important role.

The interviewees also indicated the areas where in their opinion a centralised effort is desirable. Such areas include: image creation and marketing; better information management and new skills, especially in international project management.

Overall the interviewees evaluated the ability of UA to diversify income streams as very positive. Based on the data analyses we may conclude that UA's orientation towards regional development, the choice of scientific areas, namely, information and communication technologies, ceramics and engineering; tight contacts with the external entities; accumulated experience in cooperation with the external environment are the factors that contribute to income diversification activities.

As duration of collaborations and trust building were mentioned by the interviewees as essential components for successful cooperation, the fact that UA started these activities right from its establishment allowed to build credibility among its partners.

In the next chapter we will present the findings from the second case study – the University of Lisbon.

CHAPTER 7- CASE STUDY 2: The University of Lisbon

The second case study was conducted at the University of Lisbon (UL). For its historical and organisational characteristics it may be considered as a distinct case from that of the University of Aveiro. The following section will introduce the institutional profile, organisational structure, financial resources and strategic planning at UL. This background will serve to interpret better the interviews with the central management and the deans of the faculties and their perceptions regarding revenue diversification at UL.

Interview data will be reported in a separate section organised according to dimensions and categories resulting from the content analysis. The focus here will be on interviewees' perceptions of the process of revenue diversification, its significance for the institution and the extent to which the university's organisational structure is changing under its influence. We will also examine the factors which are considered by the interviewees to facilitate revenue diversification as well as the ones which hinder this process. We will then have a look at revenue diversification in a time perspective, analysing the differences in relationship with the state, as well as in social and institutional contexts. Finally, a summary of the findings is presented.

A total of twelve interviews were conducted during the period September-November 2010. The quotes were coded in order to provide anonymity to the interviewees. We use abbreviations FD – faculty dean (we use the same abbreviation for directors of institutes in order to preserve anonymity, as there are only three institutes), TM – top manager and MM – middle manager in cases where instead of a dean we interviewed somebody from the faculty's management team. Each interview was also attributed a number.

7.1. Institutional Profile

7.1.1. History

The University of Lisbon is one of the oldest universities in Portugal; its roots go back to the Portuguese university founded in 1288, whose location changed

several times between Lisbon and Coimbra. It was permanently transferred to Coimbra in 1537. The University of Lisbon was re-founded in 1911 by joining four schools of higher learning: Medico-Surgical School, the School of Pharmacy, Polytechnic School and Higher Studies in Humanities (in Portuguese – Curso Superior de Letras). Being one of the few universities during the largest part of the 20th century and given the centrality of Lisbon, the University of Lisbon's history is closely connected to that of the capital and the Portuguese society in general. Among the alumni of the University of Lisbon there are many distinct politicians, economists, scientists and cultural personalities. The University of Lisbon together with the University of Porto and the Technical University of Lisbon is one of the few Portuguese universities that are present in the Academic Ranking of World Universities (www.arwu.org). It is the only Portuguese university that can boast of a Nobel Prize winner, Egas Moniz, who was a professor of neurology there from 1911 till 1944. Though the significance of the last two facts can be contested, the first one, due to methodological debates around rankings, and the second, due to its remoteness in time, they are often used in official university documents for creating an "organisational saga"[22].

The first original schools that comprised the university were schools of Sciences, Humanities, Medicine and Law. During the 20th century, other schools were added to the core: Pharmacy, Psychology and Educational Sciences, Social Sciences, Fine Arts and Dentistry. The university's focus has been on providing classical education. Such study areas as Economy, Management, Engineering and Technology were not developed due to various historical factors.

UL is located in the political and administrative capital of Portugal, the most important economic and population centre. The proximity to transportation networks and to scientific, cultural and sports institutions may also be considered as an advantage.

[22] An organisational saga is a collective understanding of a unique accomplishment based on historical exploits of a formal organisation, offering strong normative bonds within and outside the organisation (Clark, 1972).

The Lisbon Region presents the highest activity and employment rates for workers between 25 and 35 years of age, and the most relevant economic activities. The service sector is responsible for ¾ of the global employment in the region. The majority of public administration services are located in Lisbon. The private sector employment is mainly concentrated in banking and finance, consulting, accounting, IT, energy, communications and transport, as well as in tourism, trade and health (University of Lisbon, 2009, pp. 14-15).

However, this central location besides bringing several advantages, presents a challenge as well. In contrast to all major cities in Portugal, which have only one public university, Lisbon has three universities, one university institute, one Open University focusing on distance learning, one large public polytechnic institute, and several polytechnic schools. There are also many private universities, institutes and schools. This complex higher education landscape creates a highly competitive environment.

Most of the university's faculties, as well as central services are located on the main campus, the University City. The Faculty of Fine Arts is located in downtown Lisbon. There are several non-teaching units scattered around the city and its outskirts. Many of the building were built in the 1950s and 1960s; the second wave of building occurred in the 1980s and 1990s. Two of the newer buildings were awarded an architectural prize. The building of the Central Administrative Services has a distinctive artistic and cultural venue, Aula Magna.

The university enrols around 20,000 students and employs around 1,500 full-time equivalent academic and 1,250 non-academic staff. Measured by the number of students, the University of Lisbon is the second largest public university in Portugal after the University of Porto. Around 90% of students are from Lisbon and neighbouring districts.

7.1.2. Organisational structure and governance

The University of Lisbon is a classical university organised into faculties, some of which are further subdivided into departments. Each faculty has administrative, financial and academic autonomy. The University of Lisbon was formed from the association of the existing schools each one with a rich history of its own. Its decentralised structure can be traced to its historical origins. According to a self-evaluation report (University of Lisbon, 2009), striking the right balance between centralisation and decentralisation has been an issue at UL throughout its existence. Some reasons for this issue are rooted in history. During the dictatorship period of 1926-1974 autonomy given to universities was gradually diminished. The competences usually possessed by universities (academic, administrative and financial) were transferred to the government. Under these circumstances the creation of the common identity was hard to achieve as the Central Administration of UL had practically no decision-making power. In 1976 a new government published a law that established democratic rules of governance of faculties. The role of the central administrative services was limited to pure bureaucratic matters. The authority of rectors was gradually increased from 1982 and more so after the publication of the Law of University Autonomy (Amaral et al., 2002, p. 98). One of the Rector's tasks, according to the old statutes (DR nº 189, I Series – B, August 18th, 1992), was to promote the unity of the university (Amaral et al., 2002, p. 101). The new legal regime of higher education institutions (RJIES, Law 62/2007) and the alteration of UL Statutes in 2008 gave more executive power to the Rector and tried to promote stronger cohesion between the basic units.

Until recently the University of Lisbon had the following basic units:

- Faculty of Arts and Humanities (FA&H);
- Faculty of Law (FL);
- Faculty of Medicine (FM);
- Faculty of Sciences (FS);

- Faculty of Pharmacy (FPh);
- Faculty of Psychology and Educational Sciences (FP&ES);
- Faculty of Fine Arts (FFA);
- Faculty of Dentistry (FD);
- Institute of Social Sciences (ISS).

There are also units that are not dedicated to university-level teaching:

- National Natural History Museum – research and service provision unit;
- Science Museum – research and service provision unit;
- Institute for Vocational Orientation – became a university's basic unit in 1989. It is a research and service provision institution. Among provided services there is career advising; recruiting and professional training in the area of professional orientation among others;
- Bacteriological Institute "Câmara Pestana" - a research and service provision unit;
- Geophysical Institute "Infante D. Luís" – has a statute of Associate Laboratory. It develops and cooperates in research initiatives, and in teaching and research activities organised by the University of Lisbon. It also hosts technical and scientific scholarships and prepares information related to the meteorological and seismological phenomena for the public or the public authorities.

All basic units have their own statutes which are approved by the Rector. According to the previous Autonomy Law the university governance bodies were as following:

- University Assembly – a representative body, composed of elected and ex-officio members. Its function was to elect the rector and approve the university statutes;
- Rector – the highest officer, who represents university;
- University Senate - a representative body, composed of elected and ex-officio members. It was responsible for approval of university's

development plan and overseeing its execution; give opinion about faculties' and other basic units' statutes; define the university's research policy; approve the university's budget, approve creation and extinction of study programmes, etc.;

- Administrative Council – was composed of the rector, a vice-rector, an administrator; a director of administrative services and one student. It was responsible for administrative, patrimonial and financial management of the university.

As previously mentioned (Chapter 4), the new legal regime of higher education institutions has altered their governance structure. The new statutes contemplated some reorganisation of the university's basic units: the Faculty of Psychology and Education was divided into the Faculty of Psychology and the Institute of Education; from the Faculty of Arts and Humanities a new basic unit – the Institute of Geography and Territorial Planning – was created. Thus, there are currently 11 basic units.

According to the new university statutes (Despacho nº 36/2008 from 1st August 2008) the governing bodies are:

- General Council;
- Rector;
- Management Council;
- University Council;
- Senate.

The General Council set up on 10 December 2008 is composed of 23 members: 12 professors and researchers, four students, six external personalities and one non-academic and non-research staff member. The Rector, elected in 2009, has a reinforced position according to the new legal regime and the Statutes. What before was the competence of the University Senate, now is the competence of the Rector, for example, elaboration of strategic plans, annual reports and management reports, approval of the creation, transformation and extinction of programmes, proposal to the General Council regarding the creation,

transformation and extinction of basic units, etc. The Rector's team is composed of the three vice-rectors and the six pro-rectors. The Management Council is composed of 3 members (the Rector, a vice-rector, and the Administrator) and is responsible for the administrative, patrimonial and financial management of the university. The Rector can designate one student and one non-academic staff member as members of the Management Council without giving them executive functions.

The University Council and the Senate are two consultative bodies which assist the Rector in his decisions: the Senate advises about academic matters and the University Council assists the Rector in strategic coordination of the university. According to the self-evaluation report (UL, 2009), these two bodies were established to ensure wide participation and involvement as well as more effective coordination between the various levels of governance; because one of the major concerns of the university leadership is the institutional cohesiveness and comprehensiveness.

The governing bodies of the faculties are the Faculty Assembly, the Director, the Scientific Council and the Pedagogical Council. The presidency of the scientific, pedagogical council or of both can be attributed to the dean of faculty. According to the statutes of each basic unit, other executive or consultative bodies can be created. Several basic units where interviews were conducted opted for the reinforced role of the dean who presides both or one of the Councils.

The new statutes also contemplate a second type of structures at an intermediate level - strategic areas. The five strategic areas are: Arts and Humanities, Health Sciences, Sciences and Technology, Social Sciences and Law, Administration and Economy. Strategic areas comprise basic units from the University of Lisbon and the Polytechnic Institute of Lisbon with which UL has been having discussions regarding forming a consortium, according to the 17th article of the RJIES which says that "basic units from one institution can partner with basic units from another higher education institution for joint coordination for the pursuit of their activities". Strategic areas have a Coordinating Council which is chaired by the Vice-Rector

and composed of faculties' deans. Its main functions are: to promote scientific research, organise the post-graduate programmes, rationalise the offer of undergraduate courses and establish consortiums with external entities.

Another major organisational change in the past three years was the establishment of the Common Resources and Shared Services Centre. It was created to rationalise human and financial resources and to professionalise the university management by attracting more qualified staff (currently, only 27% of the contracted non-academic staff have higher education qualifications).

To support entrepreneurial activities a knowledge transfer office, UL Innovate, has been centrally set-up. It is directly coordinated by one of the Vice-Rectors. There are presently 14 start-ups on campus. UL Innovate is also responsible for administering courses on entrepreneurship for Master's and doctoral students of UL as well as for the wider community. For the university's students the course is free of charge and the supplement to the diploma is given at the completion of the course. Before the central office was established, the technology transfer office was hosted at the Faculty of Sciences, Institute for Applied Science and Technology.

The University of Lisbon did not choose to transform itself into public foundation governed by private law. The institutional position expressed by the Rector in his Action Programme is that more clarifications are required regarding the legal definition of "public foundation governed by private law" and the implications this new status brings to the institution. Additionally, the budgetary structure of UL does not comply with the obligatory 50% of own revenue requirement yet.

7.1.3. Scientific and research profile

In 2009/2010 academic year the University of Lisbon offered 52 first cycle programmes (Licenciaturas), including integrated Master's Degrees[23], 159 Master's, 43 doctoral programmes and 56 non-degree programmes. The majority

[23] Strictly this are not first cycle degrees, although they are treated by the state, when it comes to access and finance, as 1st cycle.

of programmes are administered by the Faculty of Sciences and the Faculty of Humanities, which together with the Faculty of Law are responsible for the majority of enrolled students (60%).

The University of Lisbon has three Associate Laboratories: the Molecular Medicine Institute, the Geophysics Institute Infante D. Luís and the Social Sciences Institute. It also hosts an Institute for Interdisciplinary Research (former Interdisciplinary Complex) which was donated to the University of Lisbon in 1992 after the extinction of the National Institute for Scientific Research and accommodates research centres in disciplinary areas of mathematics and physics.

According to the evaluation conducted by FCT in 2007, there were 44 research units recognised by FCT (excluding Associate Laboratories), out of which 28 (64%) were classified as "Very Good" or "Excellent" (Table 27). As it can be observed, the research potential is concentrated in three basic units, the Faculty of Arts and Humanities, the Faculty of Sciences and the Institute of Social Sciences.

Table 27 - Classification of R&D units financed by FCT

	FA&H	FL	FM	FS	FPh	FP&ES	FFA	FD	ISS	Total
Excellent	4			2					2	**8**
Very Good	2		1	10	1				6	**20**
Good	2		1	3		2	1	1		**10**
Fair	2	1	1	1		1				**6**
Total	**10**	**1**	**3**	**16**	**1**	**3**	**1**	**1**	**8**	**44**

Source: R&D research units' evaluation (2007)
http://alfa.fct.mctes.pt/apoios/unidades/avaliacoes/2007/resultados [accessed 01-06-2011].

75% of the researchers in UL belong to research centres evaluated as "Very Good" or "Excellent". The areas of excellence in research are mathematics, physics, chemistry, literary studies, philosophy, health sciences and social sciences. In the area of health sciences notable research is conducted in the Molecular Medicine Institute and the Faculty of Pharmacy. In the area of social sciences research conducted in the Institute of Social Sciences and focused on sociology, anthropology, political science and contemporary history is quite strong.

Strong research is developed in the newly created Institute of Geography and Territorial Planning, which used to be part of the Faculty of Arts and Humanities. The University of Lisbon is the third Portuguese university after the Technical University of Lisbon and the University of Porto in the number of citations on the web of Science (data 2000-2007). In terms of number of publications per thousand students, Sarrico et al (2009) present comparative data for the Portuguese public universities, where UL ranks in fourth place after the University of Porto, Technical University of Lisbon and the University Nova of Lisbon (NOVA). Standard bibliometric indicators rank UL among the top Portuguese universities with particular focus on excellence in natural, exact and health sciences.

7.2. Financial Resources

7.2.1. Budget allocation

As previously mentioned, UL has a much decentralised structure and each faculty enjoys administrative and financial autonomy. After the budget for each basic unit is established, faculties manage their share of the state budget and all own revenue with complete independence. The faculties are responsible for payment of salaries and for current maintenance of their infrastructures. The allocation of resources to faculties has followed the funding formula used by the Ministry. However, given a heterogeneous nature of UL's basic units, some of which are not teaching units, some necessary adjustments in budget allocation had to be made. Some basic units are the financial responsibility of the Central Administrative Services, for example, museums.

Before the new legal regime was applied, the Rector presented a proposal for budget allocation to the Coordinating Committee of the Senate which was then discussed and voted on. Currently, the budget is presented by the Rector to the General Council who approves it.

Central services did not use to retain overheads from research projects and tuition fees, except in cases when courses were administered by central services and the research money was managed by UL Foundation, a non-profit private entity

created in 1988 whose principal mission has been financial management of scientific projects at UL. Each faculty was independent to decide the amount of overheads. This situation may change with the creation of the Common Resources and Shared Services Centre which will concentrate the management of all research funding. The overheads charged for project management will be used to support new projects and advance funds for projects awaiting disbursements.

The Social Services' budget is managed separately and is not included in the university budget (unlike at UA where the Social Services' budget is integrated in the overall university budget). The Social Services have as well their own revenue and manage it independently.

7.2.2. Income structure

The funding sources at the University of Lisbon as at any other Portuguese university are: state budget allocated as a lump sum in monthly tranches; students' tuition fees; research funding from national and international predominantly public sources; and revenue from services. Historically, the following entities of the University of Lisbon are funded outside the state funding formula: Astronomic Observatory of Lisbon, Social Sciences Institute, Bacteriological Institute "Câmara Pestana" and Institute of Vocational Counselling; their funding is based on historical method and comes from the government.

In 2007 the funds from the state budget represented 70% of the total revenue. University's own revenue, comprised by public and private sources was broken down as follows: tuition fees – 15%; sale of goods and services – 7%; EU funds - 3%; current transfers and capital – 3% and 1% other revenue (interest, rents, etc.). From 2008 UL has consolidated accounts only with some entities that manage research funding, namely with UL Foundation and the Faculty of Sciences Foundation. These two foundations together had combined profits of 8.4M€ in 2005 and 9.5M€ in 2007. If these profits are added to 2007 budget, the proportion of own revenue would increase to 34% and state budget would decrease to 66%. The evolution of the state budget by faculty and institute as well as the evolution of funding sources can be seen in Table 28 and in Table 29.

Table 28 - State budget – initial allocation

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
CA*	8,218,364	9,034,701	8,569,710	9,252,212	9,960,566	8,146,925	7,925,628	7,384,200	12,132,648	14,165,600
FA&H	15,742,870	16,843,602	17,536,667	17,313,643	17,036,851	17,606,885	16,852,051	14 ,625,606	14,304,952	14,198,133
FL	4,607,496	4,498,139	5,032,866	5,151,428	5,066,250	5,319,808	5,281,182	5,152,361	5,211,355	5,211,355
FM	8,682,316	9,342,644	9,259,162	9,515,913	9,731,574	10,526,498	10,947,558	11,599,019	11,864,058	11,864,058
FS	27,274,274	29, 346,390	30,313,104	30,321,885	28,055,728	28,650,042	27,425,254	25,206,352	24,711,529	24,711,529
FPh	5,748,052	6,087,444	6,133,790	6,353,594	6,416,319	6,780,810	6,916,426	6,850,706	7,052,875	7,572,884
FP&ES	4,903,448	4,990,448	5,264,313	5,292,189	5,078,917	5,148,917	5,097,428	4,865,142	4,899,429	4,899,429
FFA	3,233,742	3,702,332	4,038,317	4,081,510	3,958,941	4,270,585	4,358,247	4,106,976	4,050,942	4,050,942
FD	2,169,596	2,377,570	2,606,920	2,645,099	2,799,537	2,895,776	2,823,382	2,667,213	2,594,903	2,594,903
ISS	2,068,401	2,156,608	2,290,545	2,655,656	2,655,656	2,655,656	2,753,626	2,582,901	2,583,000	7,362,384
BI**	845,752	885,117	797,593	733,658	733,658	733,658	760,724	713,559	n/a	n/a
IVO***	196,127	202,008	208,956	213,355	213,355	213,355	221,226	207,510	100,000	100,000
Total	**83,690,438**	**89,467,003**	**92,051,943**	**93,530,142**	**91,707,352**	**92,948,915**	**91,362,732**	**85,961,545**	**89,505,691**	**96,731,217**

Source: UL in Numbers, 2004 and 2009
Central Administration; ** Bacteriological Institute; * Institute of Vocational Orientation*

Table 29 - Evolution of UL's budget per funding source (corrected allocation without net balance from previous years)

	2000	2001	2002	2003	2004	2005	2006	2007	2008
State Budget	84,813,456	90,417,973	9,257,136	93,709,772	94,051,028	92,830,465	92,301,900	90,731,177	93,153,225
Plan Investments	1,434,465	11,717,760	14,209,056	7,845,766	5,497,511	1,855,251	2,514,822	1,400,000	695,810
Own Revenue	19,292,791	18,169,337	22,719,511	21,391,337	40,259,664	36,040,444	34,891,844	39,623,246	36,493,815
Total	**118,450,612**	**120,305,070**	**129,500,004**	**122,946,875**	**139,808,203**	**130,726,160**	**129,708,566**	**131,754,423**	**130,342,850**

Source: UL in Numbers, 2004 and 2009

Like many Portuguese universities, UL has experienced budgetary difficulties especially since 2007 when obligations to pay Social Security and contributions to the state pension fund were transferred to higher education institutions, without further reimbursement from the state. Since 2007 the university has seen its budget capacity reduced, its expenses being superior to its income from the state. To bridge the gap in the budget it was necessary to use transitory balances from previous years and redistribute own revenue between some faculties. One of the measures to contain the budget deficit has been to reduce the permanent staff by not making public calls for vacancies opened up after retirement and rely more on part-time teaching staff (University of Lisbon, 2009).

In relation to own revenue, it can be seen in Table 29 that its share significantly increased from 2004, the year in which a higher amount of tuition fees was introduced, and then stabilised at the average of 36 million Euros per year. Unfortunately, there is no data available showing the evolution of each separate source of own revenue and the amount of own revenue per faculty but based on our interviews we may estimate that at most faculties at least half of earned income comes from tuition fees.

UL has experience of negotiating with the Government contract programmes in which targets are set and resources are contracted. UL proposed and obtained approval of a contract programme between 1999-2002; and sent 2000-2006 and 2004-2009 development plans to the government, without obtaining any response. UL has also negotiated a special budget for some of its non-teaching institutes.

In January 2010 Portuguese universities signed a contract of confidence with the government which stipulated additional funding of 100 million Euros in exchange for achieving the goals. The specific contribution of UL was to qualify 6,500 people during the period of 2010-2013.

7.3. Strategic Thinking and Planning

According to the university's mission statement, UL's mission is set to provide a solid education inspired by competitive research and a commitment to community

service. The university invests in cultural, artistic, scientific and technological heritage of the academy, consolidating talents and enhancing their integration into society.

The strategic programme was elaborated and approved in 2008. It was presented for public discussion which involved students, researchers, academic and non-academic staff.

The strategic programme does not present any explicit measures to increase university's earned income. However, we found that the five main guidelines of the programme can be related to the ability of the university to raise its own revenue. These guidelines are:

- Reorganisation of the institution into five strategic areas;
- Reinforcement of scientific research;
- Modernisation of management;
- Restructuring of study programmes and student services;
- Reorganisation of the governance model.

In the remaining part of this section we will describe the first four strategic guidelines in more detail and will try to relate it to revenue diversification. The fifth guideline refers to governance restructuring according to a new legal regime.

7.3.1. Reorganisation into strategic areas

The main objective of the university's reorganisation into five strategic areas is to create intermediate management structures able to coordinate teaching and scientific activities. The co-existence of faculties and research institutes within the same strategic area is seen to create better links between teaching and research and allow a greater openness to the wider society through the creation of consortia with external entities. This new organisational structure is said to be inspired by the European Commission's communication "Delivering on the Modernisation Agenda for Universities: Education, Research and Innovation" (European Commission, 2008) which states that universities require "new internal governance

systems based on strategic priorities and on professional management of human resources, investment and administrative procedures. It also requires universities to overcome their fragmentation into faculties, departments, laboratories and administrative units and to target their efforts collectively on institutional priorities for research, teaching and services". This reorganisation also meant to serve the purpose of reinforcement of scientific research in terms of creation of critical mass and interdisciplinary cooperation.

How can this new organisational structure influence the ability to generate revenue? Potentially, streamlining of administrative procedures would free up researchers and leave them to what they do best. The flow of information within one strategic area and between them could aid in avoiding duplication of roles and even projects. Working under the umbrella of a strategic area could also potentially facilitate collaborative research, which is greatly valued by funding agencies.

However, this new structure has yet to prove its viability and acceptance by the university's communities. For example, the EUA evaluation team found some possible complications in adaptation of the university to a new structure. The creation of five strategic areas did not interfere with the existing academic structure where the faculties are the basic academic units. It was decided to leave the faculties governed by deans and all the organisation of the undergraduate teaching. The evaluation team warned that splitting the university into two parts should be avoided.

> Having, on the one hand, the rector structure with five strategic areas, quality assurance and common services and, on the other hand, the traditional faculty structure without any real connections would be deleterious (EUA, 2010).

7.3.2. Reinforcement of scientific research

The reinforcement of scientific research appears to be the strongest guideline of the strategic programme. The goal of UL is stated to become a research-oriented

university. In the past three to four years UL has considerably increased the number of its researchers, by taking advantage of the government programme Ciência (Science). Under this programme the government signed contracts with higher education institutions to recruit PhD holders in science and technology with a five year contract. According to the self- evaluation report, UL attributed 95 positions under Ciência 2007 initiative and opened over 120 recruiting positions during Ciência 2008 initiative. Due to the fact that only research units classified as "Very good" and "Excellent" could participate in the programme, new contracted scientists reinforced the existing areas of excellence. This programme also gave an opportunity for internationalisation of research teams, as 40% of contracted researchers are foreigners.

The Strategic Programme sees research as one of the major funding streams not only for sustainable scientific development of the university, but also for its financial health. According to this document, in 2007 research brought 13% of the total budget of the university. This share was distributed in the following way: the Faculty of Science – 46%, the Faculty of Medicine – 26%, the Social Sciences Institute – 11,5%, the Faculty of Arts and Humanities – 9%, the Faculty of Pharmacy – 4%, the Faculty of Psychology and Educational Sciences – 2%, the Faculty of Dentistry – 1,5%. One of the goals set in the Strategic Programme is to increase this share and to possibly integrate the financial management of research units into some central structure. Until now the financial management of research funds was conducted by different private and public entities with various designations, which is seen in the Strategic Programme as harmful for the university's financial health.

7.3.3. Modernisation of management

One of the proposed measures to modernise management at UL is to grant more scientific and pedagogical autonomy to basic units while centralising financial and administrative services where necessary, to avoid duplication. The focus is on a strong coordination function in the management of different types of services through a Common Resources and Shared Services Centre: information system,

legal service, logistics and procurement, financial and accounting services, human resources, communication and image, bibliographic services, technology transfer, etc.

Before, the central services, and particularly the Rector's team, did not have funds to resolve occasional problems or to support university-wide programmes (Nóvoa, 2009). In 2010 the Rector presented a proposal regarding the new financial and management model at UL which was approved by the General Council. Income from the state budget is to be divided into the five funds: 87.5% - funding of basic units; 5% - strategic objectives; 1.5% - joint programmes involving different faculties; 2.5% - Common Resources and Shared Services Centre; 3.5% - Cohesion and special needs fund, which is aimed at helping faculties who experience financial difficulties and other financial urgencies.

This new model attributes to the central administration, the Rector and the General Council, a central role in funding policies inside the university. With a separate share of the budget devoted to the university-wide initiatives and common services, the central administration hopes to have the long-needed financial support for steering and strategic development of the institution.

Another step towards a more systematic approach to activities' analysis and costing is a full-costing methodology which is being tested at one of the faculties. The application of this methodology is required by the European Framework Programmes and allows assessment of both direct and indirect costs related to research projects and other university activities. It can be used as a tool for strategic management to support efficient resource allocation and to have a coherent approach to planning, monitoring and evaluating institutional performance (EUA, 2008).

7.3.4. Restructuring of study programmes and student services

Restructuring of study programmes and improvement of student services is the next point of the strategic programme. A concern expressed in the Strategic Programme is that the university and its professors are not well adapted to a new

reality despite a considerable amount of course restructuring that took place due to the implementation of the Bologna process. The strategic programme calls for new didactic and learning approaches, which are student-centred. It also identifies a problem of drop-out students. While there are various reasons for dropping out of university it is felt that a greater focus should be put on providing better services to students in terms of dormitories, information services, libraries, etc. An emphasis is put on creation of the common identity, the sense of "belonging" among students by simplifying and unifying of administrative procedures, by creating a common user ID within the university information system, by extending working hours of libraries and study rooms and by reorganising the university campus.

The above guidelines of the Strategic Programme show that the university is open to adopt a more "managerial behaviour" by implementing modern tools of management and restructuring its management structure. It can also be argued that UL is thinking in a more business way when such objectives as cost containment and improving student services are discussed. Although these measures do not directly influence the ability to generate additional income, they contribute to freeing up resources that can be reallocated into strategic investments (Estermann & Pruvot, 2011).

A more explicit reference to revenue diversification can be found in the Self-Evaluation Report (University of Lisbon, 2009) and the Rector's Action Plan (Nóvoa, 2009). These documents admit that the state budget will not increase in the following years and the strategy for financial stability is to decrease expenditure with staff salaries (not more than 80% of the university's budget, which is quite high by international comparison), to reduce permanent teaching staff and diversify staff composition; and diversify funding sources by attracting more funds from contracts and services. To increase the capacity for revenue generation, a reorganisation of the research funding system is proposed. The objective is to integrate all research units into the university's management system, implement a full-costing methodology and consolidate budgets and accounts with those units. The middle term goal for revenue diversification is 50%

of own revenue coming from different sources: tuition fees, research, services, contracts, etc. (Nóvoa, 2009).

A special attention is also paid to the opportunity for fund-raising. It is believed that UL's prominent position in Portuguese society and its perceived prestige places it in a good stead for receiving private donations. UL has been benefiting from private endowments, mostly directed at prizes or renewal of Aula Magna, but patronage is seen as still largely untapped potential (University of Lisbon, 2009). The creation of UL-wide Alumni Association is also seen as a potential for networking with society, promoting the image of UL and contributions from graduates who occupy prominent positions in society.

Overall, the strategic documents of UL and the measures proposed are focused on consolidating the university around common goals, strengthening the leadership role of the Rector and central administration, and promoting organisational, managerial and cultural change. A preoccupation with funding issues can be clearly identified but the focus is more on a cost side rather than on revenues. It can be explained by the fact that the process of organisational restructuring has been more urgent in the current circumstances for central administration and that revenue generation is largely the responsibility of each faculty.

7.4. Discussion of Results

The interviews at UL were conducted at the time when various institutional changes were taking place simultaneously. These changes also seem to be the most significant ones for the past 10-15 years. However, the results of this restructuring will only be seen in 3-5 years' time and our current analyses is just a snapshot of what is going on at the institutional and basic units' level and how the question of revenue diversification is perceived amongst this change.

During the interviews a range of accounts has been gathered from very different perspectives. UL has a very heterogeneous profile of its basic units in terms of their potential for revenue generation: some provide services and advice for the

local community, other provide medical treatment, other have a strong research base and capitalise on industry and business partnerships, yet other are successful in administering non-degree courses and teaching abroad.

7.4.1. Process

7.4.1.1. Importance of revenue diversification

The perception of the interviewees regarding higher education funding is that allocations from the state budget are not going to increase and in real terms are likely to diminish. Therefore, revenue diversification is seen as an inevitable route to be taken by universities. According to the interviewees, formula funding from the state budget is insufficient to pay all the salaries at many UL faculties. The situation is especially difficult for the faculties with a high percentage of permanent academic staff. Increasing the share of own revenue is a question of survival for those faculties. There are also faculties who have reached more than 50% of own revenue. These are usually faculties where per student cost is lower and student-professor ratio is higher.

Interviewees at both central and middle management level have confirmed this trend towards greater need for revenue diversification:

> Since 2005 to 2009 we lost around 15% of the global budget that we used to receive and we have to do exactly the same which means that we are suffocated. Therefore, there is a need to find other revenue which does not come from the state. (TM1)

> If it were not for own revenue, some faculties would close their doors because they would not survive with the state budget only. (TM3)

> The state budget basically pays 12 months of salaries. The holidays' subsidy and the 14th month have to be paid with own revenue. The day-to-day functioning of the faculty is paid for by own revenue as well. This faculty has around 800,000.00 Euros of own revenue; and the more this margin grows the better-off is the faculty. Therefore, it is increasingly important to fight for revenue generation. (FD10)

As reported by participants of the study, in general, the composition of own revenue at faculties' level is as following: 50-65% are tuition fees from the 1st, 2nd and 3rd study cycles; around 30% is money from research projects and multiannual research funding; 5-15% comes from services, contracts with industry, etc. At some faculties the share of research money will be greater; the most notable example is the Faculty of Sciences. At others, services and contracts will represent a significant proportion, for example, the Faculty of Law, or the Institute of Geography and Territorial Planning.

Faculties have great autonomy in signing the contracts and protocols with external entities. The decision-making about new initiatives is predominantly done at the faculty level, except for the cases when university-to-university agreements are signed or the initiative for collaboration starts at the central administration level. The decision-making process is quite straightforward: the proposal goes to the faculty's dean, then it is assessed by the faculty's legal services and the contract is then signed.

The respondents agreed that universities need to be increasingly creative in the development of new funding streams because there are several limitations to the growth of non-state revenue: the economic crisis, the consequent drop in available financial resources and containment strategies of public and private companies. The interviewees also felt that increasing funding through tuition fees is quite difficult under the current circumstances:

> I think that participation of students and their families in the funding of higher education has reached its limit for the first cycle studies and cannot be increased without compromising access to the system. (TM2)

Another limitation pointed out by the interviewees is that research funding received by research units is linked to specific activities and the faculties and the university do not financially benefit from this funding. Until recently the amount of overheads was insignificant and most of the research money was managed through UL foundation that retained the overhead for providing administrative services. This is

expected to change when management of research units will be integrated into the faculties' management structure, as confirmed by this faculty's dean:

> There has to be a greater participation of the projects in the expenses of institutions. There are institutions that charge higher overheads than us and eventually there should be a change in attitude. (FD8)

For many years research units were accountable to the national Science and Technology Foundation only. However, they were based at universities and used university human resources and infrastructures. A kind of a parallel structure was created. So, there has been a sentiment of injustice on the part of the higher education institutions because of the preferential treatment of research units, both in terms of funding and administrative procedures.

> The academic staff members are obliged to report their research directly to the FCT without obligation to give any information to their main governing body, which is the university. This is a problem. And now we have to absorb this information and show the researchers that they would only win if they start presenting this information not only to the FCT but to the university as well. (TM1)

This issue is also addressed in the Strategic Programme. It says that independent management of research units could be justified during the expansion of the scientific and technological system when R&D units were freed from bureaucracies of university structures and public services' accounting. However, at the times of change the integration of research units into university and consolidation of teaching and research budgets seems to be necessary for financial sustainability (Strategic Programme, 2008).

Another funding source that interviewees found important is donations. They referred to North American and British universities where they believe donations and endowments constitute a significant part of the budget at some universities. The respondents regretted that in Portugal there was no culture of donating to higher education and this funding source would be difficult to explore.

> North-Americans have been subsidising universities with private funds from alumni and patrons for a long time - a tradition, clearly absent in Portugal. Therefore, it will be difficult to count on this funding source. (FD8)

Despite of this sceptical outlook and according to the Strategic Programme, UL would like to attract alumni and involve them into institutional development. For example, in 2010 an Alumni Association was established and some prominent alumni were involved in the centenary of UL. The contribution of alumni is seen not only in monetary terms but also in terms of opportunities for networking for current students.

Earned income is reported to be almost completely absorbed by current expenses. Being fully autonomous entities, the faculties are responsible for all expenses with staff and maintenance. There is an effort at the institutional level and at the faculty level to have some kind of strategic fund which can be used for special programmes and new initiatives. At the central level we have mentioned the new management model which allocates a share of the state budget to common projects. At the faculty level the ability to set aside funds for strategic programmes varies. This is the opinion of one faculty dean:

> I would like to be able to allocate own revenue to the research support fund, but at the moment it is impossible. With the structure we have and the budget we have, it is impossible. (FD6)

Following the perceptions of interviewees, the process of revenue diversification is mostly induced by financial constraints that faculties experience. By redefining funding rules the state is steering higher education institutions to be more cost-conscious, more efficient and more market-oriented. At the same time financial constraints limit the possibility of universities for strategic manoeuvring. In general, the interviewees' perceptions show institutional compliance with the need to generate extra revenue.

7.4.1.2. Strategy

Historically, UL has been an institution with little involvement with the market in a sense that market tendencies were not the guiding factor for institutional development (University of Lisbon, 2009). In comparison to new universities its offer of degree programmes was based on a range of classical disciplines. Some changes were introduced along the years, but they were more modest in comparison with more recent and private universities (Amaral et al., 2002). In terms of revenue generation the interviewees pointed out that UL has been relying more on its reputation than on marketing techniques:

> Some universities are using very competitive and very active institutional marketing. Others have a more conservative position whereby they manifest themselves through their own qualifications, their own status, through the type of people they have. In reality, the attitude of UL has been more conservative than business-like. (TM1)

The quote above reflects an indeed conservative opinion about revenue generation. It contrasts some low-quality institutions resorting to marketing in order to attract students and well established universities whose reputation is per se sufficient for external actors. According to the interviewees, attracting students has not been a problem for UL. However, the level of earned income through tuition fees is reportedly not enough to guarantee the financial health of the institution and its basic units. Therefore, there is a perceived need to change the attitude towards revenue diversification and become more pro-active.

In the opinion of a faculty dean below, there can be observed a change in attitude at all levels towards more market-mindedness:

> During much time money was a negligible thing for university staff, even dirty. But I find a change in this perception. There are many domains where people are seriously considering getting own revenue. There are departments, research groups, individual staff members who are actively searching for additional revenue. (FD6)

This increase in revenue diversification activity is due more to ad hoc initiatives than to a developed strategy, more “reactive than pro-active” as one of the interviewees commented. In the Rector’s “Action Programme” the goal for university is to achieve 50% own revenue at the institutional level, however, due to its decentralised structure, the responsibility of developing a strategy for revenue generation lies with the faculties’ deans. The central administration gives only general guidelines but the concrete measures are elaborated at the faculty level:

> UL has various basic units and each one of them has its own specificity. We have a meeting with faculties’ deans once a month. We cannot tell them what they have to do to have their own revenue. It is impossible. Each dean decides what has to be done. We can only tell them that they have to look for additional revenue. (TM3)

According to the faculty deans we interviewed, faculties employ various strategies to generate extra revenue. Some rent out facilities for conferences, seminars and other events. For example, the primary source of own revenue of the central services is the Aula Magna - the most prestigious space of the central administration’s building. Where possible, faculties offer non-degree courses, services to wider community, make partnerships with other Portuguese speaking countries. Another strategy developed by some faculties is increasing internationalisation in order to take advantage of the European Framework Programme for Research which gives the priority to applications from international teams:

> In terms of international funding, there is a big opportunity of the European Framework Programme as a very important and available funding source. Therefore, we need to invest in international relations, cooperation between researchers and institutions. We have been establishing cooperation protocols and promoting international mobility of our staff. Later on this will generate joint international applications to funding. (FD9)

In general, there is a growing awareness of the need for revenue diversification both at the central and faculties’ level:

> It is obvious that we are trying to increase own revenue. Therefore, there are strategies to understand where there are opportunities to increase revenue, and not only through tuition fees. (TM2)

At the university-wide level a specific strategic document for income diversification does not exist, but we have already mentioned some measures from the Strategic Programme which could potentially facilitate revenue diversification. The measures to highlight are the consolidation of research and its integration into university management; efficiency gains through the Shared Resources and Common Services Centre; Alumni Association; and a university-wide technology transfer office coordinated by a Vice-Rector.

In regards to the above measures, the interviewees were aware of the efforts at the central level and were welcoming and supporting the change. However, they pointed out the difficulties in implementation of these measures.

> I think in relation to society, the Rector has made some effort, for example, the idea of the centenary and giving visibility to the university through various initiatives, which is advantageous for all of us. The Central Administration has some ideas. But in Portugal, everything takes a long time. The results are not seen immediately. (FD8)

The respondents rarely identified their goals as generation of revenue. It may be interpreted that talking about “making money” has not entered into the mainstream academic discourse yet. Revenue generation behaviour may also be associated with the perceived threats for universities’ public mission, such as the increase in commercialisation, losing academic reputation and turning into a service providing institution. However, interviewees also pointed out that this “taboo” is gradually disappearing and more academics are getting involved into this type of activities.

7.4.1.3. Success factors

As previously mentioned, UL has quite a heterogeneous composition of basic units. The university’s faculties have different markets with which they build

relations and whose interests they need to take into account. Therefore, revenue diversification success factors vary according to the specificity of each unit. The most cited success factors are:

- Quality;
- Support from top management;
- Prestige and reputation;
- Revenue generation culture.

These factors are presented below in the order of frequency.

Quality

Quality of the institution was cited as the most predictable success factor. Quality in such a complex organisation as a university can mean different things. In research, quality can be measured in publications' numbers, classification obtained in a national evaluation of research units, or international rankings. Quality of teaching, as hard as it is to measure, can be seen in student satisfaction surveys, course evaluations, student retention numbers and employment rates of the graduates. There is also quality of campus life, support services, and infra structures. The interviewees shared the perception that all aspects of institutional quality are important for successful revenue diversification. However, each respondent emphasised an aspect which was more applicable to their basic unit's reality.

The interviewees from the faculties with a strong research component placed great emphasis on the quality of research and the scientific capacity of the academic staff. They also referred to the time factor which means that faculties with longer history and established reputation reportedly have more opportunities in attracting funding than newer research groups or centres that have to build their scientific potential and present themselves to the external entities.

The quality of the service provided to patients was cited as an important success factor at the health sciences faculties. At the Faculty of Dentistry income from

dentist appointments makes the largest share of own revenue and monitoring the quality is necessary to sustain success and prevent failure:

> The Faculty has a special characteristic. Other basic units have three types of relations: academic staff, students and non-academic staff. Here we have a fourth element, which is a patient. Therefore quality assurance can be very useful. (FD5)

For other faculties the question of building space is pressing. It was mentioned by the interviewees that revenue generation requires a certain relationship with the so-called clients, which could be students, businesses or municipal councils. Preoccupation with the image becomes necessary.

> Some practical things are important for successful revenue generation. For example, I do not have a space to receive people. If I want to sell a project to some entity, this is the best room that I have, which is horrible. When you go to any company, there is a receptionist, a secretary, an appropriate environment which the university is not capable to create. (FD8)
>
> I cannot offer a fee-paying course to international students and administer it in a room where it rains. (FD6)

The importance of the attractiveness of a physical space has been noted by Shattock (2003, p. 128) who argues that a well maintained campus is an important selling point to potential new staff, to student applicants and their parents and to potential funders: it gives confidence that the university is well managed and it demonstrates pride in good performance.

A formal quality assurance policy was established at UL following the national legislative changes, political commitments in the European context and the OECD directives. In order to elaborate a document describing the quality assurance policy at UL, the Task Force for Quality Assurance of the University of Lisbon was created in 2006. It was given a mission of defining the principles and purposes of the quality assurance policy, the evaluation procedures and the regulations that would be common to the different basic units, institutes and other bodies, and

which would lead to the construction of standardised information gathering tools. The final document was approved in 2008 by the University Senate.

In 2006-2007 UL conducted for the first time a general survey on student satisfaction in relation to courses, teaching and teachers. The survey was based on common criteria and permitted comparisons between basic units. This survey has been repeated each semester in each course. The information is processed at the central level and then passed to governing bodies at each basic unit. UL also started to monitor its student population in 2006. The Observatory of Students was founded with the aim to collect diverse data about students' origins before they entered the university, their route within the university and after graduation. The quality of research is assessed through the external evaluation coordinated by the FCT. The non-academic staff is assessed through a new national system of evaluation of non-academic staff (Integrated System for the Evaluation of Performance within Public Administration – SIADAP). There were no formal quality practices concerning third mission activities (e.g. technology transfer) and no regular data gathering at the central level.

This brief description of a quality assurance system at UL shows that a more centralised quality assurance process has developed in the past five years. It was prompted mainly by the changes in legislation. However, third mission activities are still unaccounted for by this system. It means that information on initiatives developed by different basic units is not treated at the central level and therefore cannot be used for strategic planning. In the self-evaluation report of 2009 some indicators for quality assessment of entrepreneurial activities are suggested: (i) patents filed; (ii) value of research and technology transfer contracts in connection with intellectual property; (iii) number and success of start-ups (measured by employment and business volume). There are also plans to evaluate the technology transfer office as well according to the following indicators: (i) support to researchers, (ii) stimulation, dissemination and training activities, and (iii) the outcomes of the above activities.

Support from top management

Even though the responsibility for income generation lies with the faculties' management or individual academics, the commitment of the leadership and its enthusiasm were cited as one of the success factors for implementing a revenue diversification agenda.

For example, staffing decisions at UL are made centrally, the Rector decides on public calls, new nominations and staff contracts. It is also up to the Rector and the central administration to promote the university's image. International cooperation protocols and inter-university collaborations are dealt with at the central level as well. The way the central administration deals with the above mentioned aspects and how it transmits information to the next level of organisation, is regarded crucial for successful revenue generation. The interviewees seem to think that the Rector's team has these capabilities:

> I think this Rector's team has a very open mind and fresh ideas. (FD8)
>
> It is necessary to be proactive and to have a great support from the management, a strong stimulus. And we have all this. (FD9)

Prestige and reputation

Prestige and reputation were pointed out by interviewees as preconditions for revenue generation. In UL documents age and location are often cited as reputational boosters. The fact that UL is one of the oldest universities and located in the capital is explored in order to attract students and funders. Some faculties' deans also referred to prestige based on intellectual and social contributions of these faculties' alumni:

> The ability to attract students has to do with the prestige of the faculty and with its educational offer which goes hand in hand with market demands. This has been our concern and we did it. We have some post-graduate programmes and Master's that allow getting a job faster. (TM3)

Another interviewee pointed out that when a faculty has gained reputation in one field it is easier for it to launch other initiatives and attract new publics:

> Our strong presence in some areas is being translated into other areas of intervention, for example, into new specialisation courses…(FD6)

Having a good reputation based on a long term successful performance is considered to be important for attracting contracts from external entities:

> In general, the contracts have been obtained due to the prestige of people. The researchers bring the contracts directly because they have had a successful one and then people pass by word of mouth and more contacts appear. I think this mechanism in a small country like Portugal works very well. (FD8)

To Weisbrod et al (2008) the relation between reputation and revenue generation can be ambiguous. While capitalising on a long-standing performance in research and teaching is usually looked at positively; acting like a private firm actively engaged in advertising and branding is regarded as inappropriate for a public institution. This point of view found support in this top manager's remark:

> I am not a supporter of those people who are saying that the university has to engage in aggressive marketing; similar to what is happening in private universities, in order to attract students or revenue. I am not really a supporter of this idea. (TM2)

However, in a context of increased competition and restrictive government support, the university cannot but invest in promotion of its image and reputation. It was not possible to obtain the amounts spent by UL and its faculties on promotional literature and other activities but faculty deans reported that they have made an additional effort in the past few years to study their market niches, to disseminate their teaching offer and to adapt it to the market demand. The necessity of building a consolidated institutional image has been also stressed in the Rector's Action Plan and the Strategic Programme.

Revenue generation culture

The literature on academic entrepreneurship shows that to be successful in revenue generation a new way of thinking has to be adopted by the whole institution (Clark, 1998). The interviewees at UL had a similar understanding of the successful implementation of revenue diversification activities. One of the top managers mentioned that first of all, there should be "*awareness in the academe to look for additional funding sources*" (*TM2*).

This awareness is a first step towards development of an entrepreneurial culture. The interviewees testified to different aspects of this new culture that needs to be developed. For example, one faculty dean reflects on the need for a change in culture in relation to university-industry relations:

> A very important aspect is the integration of revenue generation into the academic context. Because if we do not value this aspect internally [success is hard to achieve]. The companies often complain because they have deadlines to meet. The scientists often agree to provide some service but afterwards they do not carry it out. This happens not because they do not care but because in their daily trade-off it is more important to go to a conference A or publish a paper B than to respond to industry's needs. Especially when all industry needs is an Excel spread sheet. (FD4)

Another aspect of changing the culture is related to the ability of academics to "translate" what is being done at the university so that society and potential "clients" would have a better idea of the "usefulness" of academia:

> By using a clear and understandable language for society, and business companies we educate ourselves to know how to explain in the best possible way and using simple words what we have to offer and what advantages we can bring. (TM1)

It is interesting to note that the interviewees spoke of revenue generation culture as something that needs to be developed or improved. From their words we can make an observation that such culture does not exist institution-wide or does not manifest itself clearly.

The next section will present the interviewees' opinions about constraints for revenue generation activities.

7.4.1.4. Constraints

Several constraints have been mentioned in the interviews. They relate to the following issues:

- Staff appointment policies;
- Staff qualifications;
- Bureaucracy;
- Relationship with funding agencies;
- Institutional culture;
- Disciplinary mix;
- Financial context.

Staff appointment policies

Writing about universities' success, Shattock (2003, p. 139) noted: "If there was one single component in creating a successful university it would be in the making of academic staff appointments".

Inflexible staffing regulations were cited as one of the major obstacles to exploiting additional revenue streams. Civil servant status of the staff and the inability of the university to control salary costs, constrain its staffing autonomy and hinders its ability for revenue generation.

The interviewees often referred to the academic employment statutes when speaking of staffing policies. According to the old statutes the assistant professor who obtained a doctorate, would automatically receive permanent employment at the university. At the time of expansion faculties would admit new staff who along the years had obtained their doctoral degrees and become permanent staff. The decline of student numbers later on, the reorganisation of the study programmes and the increased responsibility of the universities with the payments to the social security and the pension fund turned this academic staff into an unmanageable

burden. The university tried to alleviate the situation by freezing the public calls for new positions and not substituting the retired staff. However, as one of the interviewees mentioned, the faculty cannot control who retires and in which area. The freeze of vacancies has not resolved the problem: some areas are still overstaffed while other lack professors and cannot respond to the existing demand:

> People are retiring and it is difficult to substitute them. And we do not have any control in relation to who retires. There are departments almost on the verge of extinction when others have an inflated number of staff. This is what affects us. For example, department X used to be an important department which reached 50 academic staff members and right now has only 12-13 people who are able to teach. This department is involved in a partnership with two other departments and has told me already that they are unable to secure the partnership. (FD6)

Based on the above one may ask whether there was a consolidate staff management policy in the first place. As basic units enjoy great autonomy, each of them was hiring staff without much control from central administration.

At some faculties it was also reported a need for additional administrative staff that has not been renewed. The lack of adequate administrative support puts extra pressure on the academic staff who have to perform bureaucratic tasks and spend time on administrative work.

Another faculty dean reported that they cannot develop a potential revenue stream due to the regulations of the academic employment statutes. For this faculty, delivering non-degree courses would be quite a profitable business. However, teaching such courses counts as part of the overall academic workload and is not remunerated separately (ECDU, Article 71, p. 24). At this faculty the workload of academic staff is already over the limit, which is nine hours per week, and the faculty dean said it was impossible to ask his professors to work extra hours without being compensated.

> Current Statutes do not allow for payment of extra hours of teaching of non-degree courses. Because of this I lose a significant funding source. If I

> cannot pay professors, I would not try to convince them to deliver non-degree and specialisation courses. But I lose a lot of money with this. This faculty in particular has the same capacity as other faculties to generate revenue, it is just that the Law on the one hand says it wants us to generate revenue, but on the other hand does not let us do it. There is a contradiction here. (FD10)

The academic employment statutes were also mentioned in relation to the rules of academic career assessment and progression. According to the Statutes each higher education institution has to establish its own regulation of performance evaluation of the academic staff. This regulation has to consider all the components of the academic work: research activity; teaching and students' supervision; participation in university extension activities such as diffusion of science, social and economic valorisation of knowledge; participation in university management bodies. Despite of economic valorisation of knowledge being included in the evaluation criteria, the interviewees would like to see some explicit rules of how these activities would impact the academic career.

The dean of the faculty which is exploring actively the income streams from knowledge transfer commented in this regard:

> The new academic employment statutes have not brought about significant changes especially what concerns career rules. The same logic for career promotion, i.e. research performance, prevails. There is already a reference to other activities, but it is not explained that an academic can gain points for licensing, patenting and contracts signed with external entities. The Statutes say that yes, it can be considered, and we have to recognise that this legal document opens such possibilities, but it is not explicitly stated. (FD4)

Another constraint related to staffing policies is that all contracting at the university has to obey the civil service contracting rules, which are quite rigid and do not correspond to the need of the university to react quickly to opportunities that arise and are created by their staffing needs.

> If we had more people working with us we would have more projects and other activities and a greater capacity to search for opportunities. However,

> there are great restrictions of civil service contracting. I do not want to contract permanent staff; I am speaking of people for service provision, grantees, this type of staff categories. Contracting is very slow, very complicated and very bureaucratic. And sometimes we have the need to respond immediately, especially in cases when we provide services to external entities. (FD8)

Staff qualifications

Finally, the lack of highly qualified support staff, especially for management of European projects, has been referred to as a constraint. As previously mentioned the interviewees attached a great importance to projects funded by European Community funds. They are important both in terms of funding opportunities as well as in terms of network creation and collaboration.

> There are few people able to manage European level projects. I have been searching on the job market for people with this kind of expertise and it is not easy. (FD8)

The same problem has been mentioned in relation to the technology transfer office. There is a perceived lack of qualifications, especially in the area of patent licensing.

> We can have here a person who manages the process but when a patent in the biotechnology area needs to be registered, it is better to go to London or New York, because the risk is tremendous. These kinds of questions easily exceed competences that we have at present. (FD4)

To develop such competences a certain volume of licensing has to be reached and experience has to be accumulated in dealing with these kinds of issues. However, according to the interviews the share of technology and knowledge transfer activities remains relatively low.

Despite the difficulties with professional support of revenue generation activities, some faculties have taken steps to develop new staff profiles which we describe in

more detail later in this chapter. It has also been mentioned that one of the significant changes within the university in the past years is the increase in qualifications of the non-academic staff, especially at the central administration level.

High level of bureaucracy

There is a general perception among interviewees that there is an excessive control on the part of the state over the university which could hinder the successful development of revenue diversification.

> I think institutions have to be responsible and accountable to the society and the state, but they should also have some autonomy. Sometimes I feel that there are too many bureaucratic constraints: civil service rules, reporting rules, etc. (FD8)

> I think the state has to control from the financial point of view, for example, but it should not interfere with the rest, with what is going on inside here, with the scientific nature, etc. They think that if academics are left to themselves they would be irresponsible and would do what they like. But if they do so, they would pay later on, the market will decide: students won't come; the employers would not accept the graduates and they will be exposed. (FD6)

The problem of the increased bureaucracy can be attributed to the fact that the new accountability requirements from the state are not matched by the management capacity within universities. Thus, the bureaucratic burden lies on the shoulders of academic-managers, as one of them testifies below:

> The bureaucracy and administrative burden is such at the moment, that we almost spend more time performing administrative tasks than thinking about strategy. We are constantly responding to some sort of questions and sometimes there is no time for planning. (FD10)

Relationships with funding agencies

The increased use of competitive funding schemes by public funding authorities also implies additional non-scientific work related to the submission of proposals

and, importantly, brings in a relatively high degree of uncertainty which in turn complicates financial planning. In Portugal, the major research funding entity is the Science and Technology Foundation.

The interviewees criticised the way the national Science and Technology Foundation works. As one faculty dean testified:

> FCT is terribly late with payments and therefore we need to have funds to advance money for projects. It makes things more difficult. I feel there are too many constraints from how FCT functions: too many reports, justifications of money transfers, and so on. (FD8)

It is also felt that the Science and Technology Foundation does not cater for the whole variety of research proposals. What does not fit the moulds is not accepted:

> Sometimes we doubt the criteria that the FCT applies. We do not have any projects financed by it. The FCT projects have to do with a certain language, with various things. (FD10)

Institutional culture

Self-evaluation report states that there is little tradition regarding entrepreneurial activities at the university. The data gathered from interviews also shows that one of the constraints towards development of revenue generation activities can be found within institutional culture. One faculty's dean related that pro-activity in terms of knowledge valorisation is not part of the university's academic culture yet. He reflected on the role of the technology transfer office, for example:

> Technology transfer office cannot be based on the American model in a sense that its staff can stay in their office and the scientist will go there and knock on the door. Here they have to be more active, they have to talk and try to excite the scientists. And here at UL it is not easy. (FD4)

Another faculty dean commented that from his point of view entrepreneurial activities are not seen as central to university mission at the moment. There is a

discourse at the institutional level but entrepreneurship is not assumed as part of the strategy. He extended this perception to the general culture in the Portuguese society:

> It is a culture that does not appreciate entrepreneurship. Portuguese culture has always been to go and work for the state and not to bother much. (FD10)

According to the Global Entrepreneurship Monitor (Baganha et al., 2005), one of the issues Portugal faces in the area of research and development and higher education system is that the Portuguese national culture limits the level of entrepreneurship. It is a culture in which risk-taking and individual responsibilities are not encouraged. Redford (2009) in a study of undergraduate students' attitudes towards entrepreneurship reports that only 16% of those questioned would like to create their own business while 81% want to work for others, with 3% not knowing which to choose.

The process of cultural change is also quite slow. To this top manager the change in mentality is happening but not uniformly across the faculties and not among all academic staff members:

> We are talking of the universe of 1,200 non-academic staff and around 1,500 full time academic staff. Around 100 or 200 occupy management positions. We cannot expect that everybody changes in the same way. Those people who have been performing management tasks for some years are aware of the necessity to look for new revenue streams. I think this awareness is very positive. (TM2*)*

Disciplinary mix

The lack of study programmes in economics, management, engineering (although there are some programmes at the Faculty of Sciences), and technology is seen as a limitation to revenue generation. As mentioned earlier, UL is a classical university and has historically offered education in more traditional fields of study.

> We do not have brand study areas that are connected directly to business, namely courses in economy, engineering, technology. And these are study areas that are connected to business aspects of great recognition. This turns out to be a handicap of our teaching offer. (TM1)
>
> For the university with 40%, 50%, 60% of study programmes not having direct connection to economy or engineering, the connection to the business world is not always facilitated. There are limits. (TM2)
>
> For example, Faculties of Engineering have more spin-offs than others. It is evident. The area allows that. (TM3*)*

To mitigate this perceived handicap, the Rector's Action Programme and the Strategic Programme for 2009-2013 envisage some changes to the study programmes offered at UL. In the first place, there is an intention to expand the five strategic areas especially in relation to the areas of Economics, Technology and Engineering. The area of Economics is included in the strategic area of Law, Administration and Economy and Technology and Engineering area is to develop within the strategic area of Sciences and Technologies. The Faculty of Sciences has already launched new degrees in Computer Science, Energy and Environment, Biomedicine and Biophysics.

> The Faculty of Sciences has some notable partnerships in terms of post-graduation programmes. As we do not have engineering at the university they partnered with the Superior Institute of Engineering of Lisbon and offer various post-graduations. (TM3)

The Faculty of Law is broadening its teaching towards Economics and Governance and Public Administration. There is a partnership between Faculty of Law, Faculty of Sciences and University Institute of Accounting and Administration (ISCAL) in a Doctorate in Public Administration, for example. At the time of the interviews, the University of Lisbon was also finalising a negotiation about a merger with the Technical University of Lisbon[24]. The desired outcome is that the

[24] The merger was completed in December 2012 and a new university was created by Decree-Law 266-E/2012.

merged institution (known as UL and bearing the UTL logo) will have the critical mass to compete at European and global levels. It will be the largest Portuguese HEI and the fourth largest in the Iberian Peninsula - in terms of student numbers, if not in income. It will be research-intensive, with a strong emphasis on inter-disciplinarity, employability and lifelong learning, with correspondingly flexible course structures (EUA, 2013).

General financial context

Universities are highly dependent on external conditions to exploit their potential in terms of income generation. The economic crisis that started in 2008 is perceived by the interviewees to be a threat to generating revenue:

> It is a lot more difficult to obtain other kinds of funding either through the state, local administration or through other foundations. Because these sources also eventually run out of money. And with a crisis that we are experiencing now, I am afraid we will suffer from the decrease in financial availability of these entities. (FD9)

> We are facing now an inevitable problem, which is a serious and profound economic crisis. Therefore, companies and different foundations will restrict to the maximum their expenses which they do not consider to be essential. When times are prosperous there is available money to invest in interesting projects. Now everybody is cutting expenses with advertising, sponsorship, social subsidies, bonuses, etc. It is not the best time to obtain funding. (TM7)

This economic situation suggests that the university has to become even more creative than under normal circumstances in order to diversify its income base. It also means that the university has to be more pro-active and partner with business companies in order to overcome the crisis.

The next section will present interviewees' perceptions about the existence of incentives for revenue generation.

7.4.1.5. Incentives

Individual motivation was cited as the main incentive for academic staff to get involved in revenue diversification. In terms of research, motivation is quite obvious, because the career advancement depends largely on research performance. Research projects bring resources and freedom to develop the research topic chosen by the researcher, to attract research grantees, to obtain equipment, to pay for conferences, seminars and other expenses.

In terms of services provided to business or industry, the existence of a research component is what attracts the academics the most:

> Large parts of our academic staff are people with great motivation for research. These people want to make a career in research, they like to be in this career and they are very motivated to do research. (FD8)

> With generating additional revenue, academic staff members gain the capacity to manage these funds which can finance partly their research activity: going to conferences, libraries, etc. (FD6)

The interviewees mentioned that financial constraints create in fact negative incentives because of the difficulties to hire new staff or to promote the existing staff. There are also no mechanisms in place yet to allocate bonuses or share the funds with those who bring in these funds.

> At present, in relation to being paid, everybody knows that this cannot happen and nobody questions this. (FD6)

However, a new regulation of service provision may bring some changes to incentives' mechanisms. It is expected that if an academic staff member is involved in activities besides his full workload he can be remunerated directly or in some other unidentified yet form. There can be also non-monetary incentives, such as reduced teaching hours, for example.

The next section will look at the interviewees' perceptions regarding the influence of revenue diversification on organisational structures, both at the central and

faculty level. This section will also present what the interviewees consider to be risks and opportunities of revenue diversification activities.

7.4.2. Influence

The past three to four years were characterised by a great restructuring and rethinking of UL's strategy and its place in society and in the Portuguese higher education landscape. The driver for change was mainly external, namely the new Legal Regime of Higher Education Institutions. The law that established this new regime was widely criticised for being hastily passed, for the lack of proper discussion with all the stakeholders, and for the lack of clarity of some concepts. However, the new regime served as a catalyst of change at all higher education institutions, including UL. The higher education institutions had to reformulate their statutes, reorganise their governance structures and reform their management. The change in the law was triggered by European wide tendencies, including the one for greater revenue diversification. In the following sections we will present the university's managers perceptions on how UL structural organisation changed in the past few years and whether these changes can be related to the need to generate more revenue outside the direct government transfer.

7.4.2.1. Structures

Changes at the central level

University structure is dependent on several factors such as institution's age, disciplinary mix, physical location and size: the organisational model that works well at a relatively small institution will not fit a large comprehensive university; the dispersal of the university over several sites will have an impact on its organisation just as will the concentration of a university on one campus (Shattock, 2003). An ideal university structure cannot therefore be defined. If we look at successful universities in attracting extra revenue, they have different organisational patterns, yet each has specific characteristics that help it to stand out in this respect.

The University of Lisbon is a large university, where the flow of information was reported as a problem. As one of the faculties' deans testifies:

> The University of Lisbon is difficult to manage because it has many faculties with different objectives, has different leaders and all this. (FD9)

Changes in governance structure that occurred in the past three to four years have been in the first place dictated by the new legal regime of higher education institutions. We have described the major changes in Section 4.5. The new legal framework was used by the university to introduce other structural changes as well. As reported in a self-evaluation report, the institutional effort was mainly concentrated on changes that would lead to institutional coherence, efficiency and interdisciplinary interaction, the main goal being to become a research based university.

The most cited structural changes at the institutional level are the creation of the Common Resources and Shared Services Centre and the establishment of the five strategic areas.

Efficiency gains were reported to be the most important driver in the establishment of the Common Resources Centre. Devolution of services to faculties has proven to be inefficient due to duplication of many functions that could be provided centrally, for example international relations office, human resources, relations with external entities, etc. The existing inefficiencies are a matter of complaint of this faculty dean:

> We cannot have people at the department who do part of the process and when it reaches faculty administration, instead of being continued it starts all over again. And sometimes, when it needs to go to the Rector, the central administration starts from square one again. (FD4)

As Shattock (2003) points out, the devolution of administrative functions can affect an institution's manoeuvrability under pressure or escalate administrative costs

and divide an institution into well-defined bailiwicks which erode flexibility and build up barriers to change.

In times of financial stringency, mobilising resources and know-how from different basic units and using this accumulated knowledge is seen by UL as a step towards financial sustainability. For example, the contracts with water, electricity, cleaning services were the responsibility of each faculty and under the new system they have to be signed centrally allowing for better pricing solutions. However, as mentioned by several interviewees not everybody supports this new development and there are difficulties in bringing everybody on board with this change:

> I think the Rector has an idea to restructure quite a bit the university services and I know that he will find a lot of resistance. I am a great defender of shared services. What happened is that each basic unit had everything and many things can be done centrally. There can be a common basis and then there should be an interface between the students, professors and researchers. At present the Centre functions in areas like human resources and also IT questions. (FD8)

The Common Resources Centre is also meant to serve the purpose of promoting the holistic vision of the institution. The creation of a common identity among students and staff is one of the concerns of central management. One of the tasks is to create a common electronic ID and institution-wide information system.

Five strategic areas were created with the vision of improving coordination and communication, both bottom-up and top-down. As explained by one member of the middle management:

> [With reorganisation into five strategic areas] some contact points started to develop, because we at UL do not know what the Faculty A does, or the Faculty B does, and maybe person A is doing the same as person B. Communication is one thing that has not been functioning. It is not always easy. (MM9)

This point of view is supported by another faculty dean:

> These days [when financial resources are restricted we must avoid that this [not communicating between faculties] happens. There is no money, therefore, my friends, let's be pragmatic [and cooperate]. (FD4)

Concentrating on each faculty's goals and each faculty's staff does not seem enough anymore; it is necessary to integrate faculties' work with an institution-wide vision. The newly created post of the director of strategic area has a function of an intermediary between the central administration and faculties within one strategic area.

The cross-disciplinary approach is seen as an important factor in revenue diversification as problem-solving increasingly needs solutions from different knowledge areas. Strategic areas also serve to strengthen the research component and reorganise research activities in a more interdisciplinary way, as well as to provide a better link between research and post-graduate studies.

The creation of the university wide technology transfer office has also been referred to as one of the structural changes. The requirement that universities should be closer to the larger societies, participate in regional development and look for alternative sources of revenue, has extended the boundaries of university strategy and the scope of university's operations. Through this change the central leadership wants to consolidate and streamline the different and often numerous partnerships that the university had accumulated through the years, often on the personal initiative of different staff members:

> UL Innovate is a more professional structure to help researchers and research centres not only to guide them in registering the patents and intellectual property, but to create a connection to the business world and make economically viable some inventions and innovations. (TM2)

The above mentioned changes would require a great amount of commitment on various levels and changing of the institutional culture. For years they have been

dealing with things within each faculty and to take things to an institutional level would not be easy.

Another notable change for the past years is the change in the academic culture which has become more receptive to the questions of revenue diversification and more open to collaborate with the society at large and business enterprises. Change in attitude may be the most important factor, for the structural change to take place it has to be accepted at all levels.

Changes at the faculty level

Similar to what happened at the central level, the new legal regime also prompted changes at the faculties' level. First of all, the changes to governance bodies were introduced. Several faculties reinforced the role of the faculty dean by changing from the management model with two executive officers to the one with one executive officer. Previously there were two figures at the top of the faculty: the director of the governing board and the president of the scientific council. At some faculties there have been tensions in the past between these two officers, as this faculty dean explains:

> The dual model sometimes presented tensions. Inside this faculty there were serious tensions during the last years of the model. But now the old model is over. There is a dean who is also the president of the scientific council. (FD6)

Similar to the above case, most faculties where interviews were conducted adopted the model where the dean of the faculty is also the president of the scientific council. The dean is also the president of the management council, which besides him is composed of the secretary-coordinator, one or more voting members and at some faculties, of vice-deans. The scientific council continues to exist but with a smaller membership:

> The Scientific Council used to integrate all the researchers at the Institute. Now, there is a maximum number of members. We have over 80 Doctorate degree holders. It was already very difficult to gather all of them and the meetings were difficult to manage. Now there are only 25 members. (MM9)

According to the faculties' deans interviewed, they are trying to concentrate financial resources and their management at the central faculty administration level. This concerns research money as well. While before the adoption of a new legal regime research money was managed through the semi-public foundation, now it is becoming the responsibility of the faculties. An important repercussion is that overheads from research projects are paid to the faculty where the research unit is situated:

> Now research brings money to the faculty as well. We decided to bring all research projects' management here. This is a significant volume of revenue… The overheads increased to 20%. (FD6)

At one of the faculties in the area of health sciences, the negotiation of medical supplies was changed from being managed by each department or individual professor to the centre. As the faculty dean said, "*if we speak at the central level with suppliers our negotiating power increases*" (*FD5*)

At one of the institutes, where research is a predominant activity, the need to manage an increasing number of research projects led to the creation in 2009 of a new professional category of the project manager, who manages the projects of each researcher irrespectively of the source of funding. "*These are people who know very well the researchers and their areas of interest. There is a team of such project managers*" (*MM9*)

Another faculty reported the implementation of a management by objectives system. The goals were set up at the faculty administration level and passed on to departments to be operationalised. Three major guidelines are: to attract more and better students, to internationalise and to secure the financial sustainability of the faculty. Management by objectives is also seen by that faculty dean as a tool of assessment of current processes and making them more efficient. In his words: "*The management by objectives will identify all the processes, a structure will be*

built where no duplication is possible". This process just started in 2010 and at the time the interviews were conducted no results were available yet:

> At this stage this is a new process and when new processes interfere with institutional culture, they develop at the pace that we do not wish for; but this is the way it goes. (FD4)

At the same faculty the area of economic valorisation of knowledge and innovation is being reinforced and invested in. According to its dean, the faculty already has a consolidated scientific potential and accumulated technical knowledge. A new direction that he wishes to develop is a more active cooperation with business and industry in order to obtain economic value from research developed at the faculty.

Desired structural changes

The interviewees admitted that not all mechanisms are developed yet for realising the full potential and maximising the returns from university activities. The greatest void is felt in technology transfer skills and international relations.

In relation to the technology and knowledge transfer office, one faculty dean mentioned that it would be helpful if it could also identify opportunities for different faculties or interdisciplinary research groups:

> Being able to get funding from industry and business companies requires a restructuring of the organisational structure which is more demand oriented and is more proactive. Right now revenue from these sources is earned with little institutional intervention, as opposed to a model which is preoccupied to identify and find market needs for internally accumulated knowledge. (FD 4)

At the same time he expressed doubt that it is possible to create such a team within one university:

> It is important to talk about cooperation between universities. There is not one university in Portugal that has resources to keep the office that has the capacity to attend to all nuances of technology transfer. We need competences of someone who has the ability to read the market needs and on the other hand knows how to decode scientific knowledge. To build a

> team who has know-how in various knowledge areas is very expensive and no university has this kind of resources, or, for that matter, the volume of projects to justify such expense. A university can develop only one area of expertise, but will it have a sufficient number of projects for a transfer office to continue functioning?" (FD4).

Another change suggested by the same faculty dean in order to promote greater interaction between industry, businesses and university is:

> Doctorate degrees in companies, joint problem-solving, joint projects – this will help to maintain the dialogue and at a certain time the researcher will understand what preoccupies industry and what problems it needs to be solved, on the other hand, the industry will understand the mechanisms of knowledge production. (FD4)

As international relations has gained more importance in the past years, in terms of international funding, student and academic mobility, and cooperation between higher education institutions, one institute Director feels that "*there can be a greater investment in this area, it would be worthwhile doing it in a more consolidated way*".

The following sections will address the risks and opportunities of revenue generation activities as they are perceived by the interviewees.

7.4.2.2. Risks

The interviewees emphasised that revenue generating activities make sense for the university only if they help to support its core mission of teaching and research. Even if university provides a service to an external community, there should be, in their opinion, an element of teaching or research and a contribution to these two missions:

> We are trying to balance financial and scientific sides, but the scientific side is always more substantial. The policy of internationalisation is pursued in fact for alternative sources of funding but a greater objective is to gain international reputation and recognition of the Institute abroad. (MM9)

Any tilt from the core mission is perceived as a risk. Becoming overly involved into revenue generation activities and neglecting teaching responsibilities was described as a major threat:

> If academic staff members get a lot of pressure for finding alternative revenue sources, I think, teaching activity, time devoted to reflection, course preparation or student services will suffer from this. I think this is a risk. (FD8)

> For some academics revenue generation can become a central activity and they can forget what their principal task really is. (FD6)

One of the interviewees expressed her concern that dependence on funding sources regulated by commercial logic can influence the freedom to teach and conduct the research. She pointed out that the external requests can be very utilitarian and dictated by the immediate goals, which is believed to be contrary to the idea of the university where a broader outlook on societal problems is developed.

> It is necessary to distinguish if the external project is useful for the university, for the type of research that is conducted at the Faculty X or Y. There should be a balance, because otherwise it would be research too much directed by external interests. This balance is not always easy to find. (TM2)

The above mentioned risks are only perceived risks as no concrete cases were cited by the interviewees.

7.4.2.3. Opportunities

Despite of some perceived risks that revenue generation activities can create, the interviewees pointed out that there are some real opportunities for the university, academics and the students in being involved with the society at large.

The fact that revenue generation activities promote the fulfilment of the service mission of the university was seen as a very positive development. The need for universities in general to be closer to their communities was also emphasised:

> Revenue diversification also has a side of social responsibility. When people apply for projects' calls and accept doing some project they know there is social responsibility, they have to present the results and this is very important. (FD6)

The adoption of a more "business" culture (see Chapter 2) was seen by the interviewees as an important quality and a welcome change. Working for objectives tries to balance the intrinsic qualities with extrinsic demands by giving academic freedom of teaching and research and at the same time restricting the tendency for academic isolationism and over specialisation. Accountability to the society at large was identified by the academics in management positions as a crucial element in their work.

> I think that any activity that brings management by objectives is good, because academic activity is endless in its nature. If it is left to itself it can never be finished. An academic can work on the same topic for 30 years, while an external influence imposes deadlines. This wakens up the institution. I think in light of the university being a dormant institution for several decades, I think this is good. It is good to be shaken up. (FD6)

Cooperation with industry was seen by some interviewees as a catalyst for new insights into their research or even for new research topics:

> The reality of problems can be a great stimulus for reflection and further research. Sometimes contracts for service provision are relatively basic things but they present real world problems. I think the contracts are positive because they bring us closer to the working world, to the reality and can give origin to new research problems. (FD8)

Some interviewees also mentioned a positive impact on students. Being involved in this type of collaborative work prepares them for the job market.

The following section will speak of contextual factors noticed by the interviewees in relation to revenue diversification. The context is divided into three areas: state, society and institution.

7.4.3. Context

7.4.3.1. State

The biggest change reported in terms of the state funding was an increase in financial support for research. According to the interviewees, the role of the research component has become fundamental for university functioning. As testified by one of the faculty deans:

> Before, research would eventually receive some funding but it was not strongly supported. I think the biggest difference, and I do not know exactly where to situate it in time, is the reinforcement of the funded research. From then on the research centres would have their own budgets while before they would survive on occasional subsidies. We started to have many more projects; the people would apply to projects financed by FCT and EU when Portugal joined the European Union. (FD8)

While research received a greater attention from the state, it is felt by interviewees that the synergy between the teaching and research dimensions within the university has not been achieved. Interviewees from both central administration and faculty management commented that research units and centres have long functioned on the margins of institutional life, unaccountable to the university and with separate funding streams. This situation is changing however with the new legal regime according to which research units should be integrated into basic units of higher education institutions that host them.

In general, the expectations are that the role of the state will continue to diminish in the future, similar to what happened in Anglo-Saxon countries. On the other hand, the pressure for additional revenue from alternative sources will increase.

There is however a conviction that higher education is too important for society to be left completely on its own:

> I think the university has a very important social role that will always be recognised and has to be recognised. Now, societies change and the university has to change as well. It is a very old institution with great inertia but it will end up changing and find the right ways. (FD8)

Financial stability is the primary need for the university to be able to carry on its teaching and research activity and develop further. Uncertainty in funding brings risk aversion which is detrimental to the university's ambition. Annual budget allocation has long been seen by university managers as an unsustainable model for university funding, because it was taking the ability of the institution for strategic planning. The Rector of UL as well as other Rectors of Portuguese universities has long battled for multiannual funding consisting of a core budget with the rest contracted by objectives. For the first time the government assumed the multiannual funding by signing a contract with the universities in 2009. This contract was signed with a sentiment of great satisfaction on the part of universities, which for the first time could rely on the agreed budget for four years.

> We have fought so much in the past years for having something similar to this [contract funding] and for having financial stability. For years we did not know what the budget was going to be and what the government would invent to cut a little bit more. Now we all feel more relaxed despite all difficulties. (TM3)

However, as mentioned by another top manager "*the contract was signed but is not completely executed because we had to receive a certain amount and use it as we find necessary, and this did not happen. The university is obliged, as well as other universities, to retain 20% of this amount*". Such government's behaviour adds to uncertainty and mistrust. As the same top manager noted, "*there is a big question mark*" [in relation to the future].

Part of the responsibility for the difficult financial conditions among universities the interviewees attributed to the state. Several interviewees mentioned an uncontrolled expansion of higher education institutions in the 1970s – 1980s which created an oversized system of higher education for such a small country as Portugal.

> Let's say, there are too many institutes and universities. In more prosperous times too many schools were created. In the 1970s new universities were created to cope with the expansion. Some universities corresponded well to their mission, others not so well. They may be important for regional development but have less weight for the state if we look at the overall situation. A desire to share between all the institutions is preventing the creation of excellence centres. And as a consequence, the whole system is dragged downwards. (FD10)

Reorganisation of the higher education system is a political problem which is not easy to resolve. There are regional interests involved, which are difficult to handle. In one interviewee's opinion the government would rather adopt a "natural selection" model in which universities would compete for resources to survive rather than making a tough political decision.

7.4.3.2. Society

In relation to the ability of society at large to contribute to university's costs the interviewees were somewhat sceptical. They felt that the Portuguese society is not prepared yet to support higher education in any significant way. Several respondents referred to fundraising as a way of getting support from the broader society and lamented that Portugal does not have a culture similar to Anglo-Saxon countries. The interviewees also expressed some doubts whether "*society has a capacity to respond to a greater pro-activity of universities in terms of revenue generation*" (FD6). This opinion relates to the economic crisis Portugal is going through and the reduced capacity of business firms and public entities to invest in cooperation with universities.

As we have previously mentioned, the possibility of increasing tuition fees is also seen as limited:

> I do not see the state saying to families to pay more for their children's studies. At least in the near future I do not see great changes in this respect. (FD4)

However, as a positive development one top manager mentioned that in his opinion, higher education has acquired a far greater importance than it used to have before:

> People want their children to have a better education and end up investing in Master's. Previously, finishing high school was an objective for many people, today it is Licenciatura (1st cycle) or Master's (2nd cycle). For me this is the greatest change in the past years. (TM3)

The above noticed change in attitude could mean several positive things for the university. Increased levels of higher education graduates could create or expand a culture towards more cooperation with the university, life-long learning and professional training of the employees, if these graduates occupy management positions in the future.

In relation to projects of cooperation with the external environment, it has also been noted by the interviewees that these collaborations take time to evolve before they bear fruit:

> Things are not born suddenly and created spontaneously. They have to be planted and cultivated in order to begin to give fruit. (TM1)

7.4.3.3. Institution

As the interviews were conducted amidst the implementation of several changes at different levels, the respondents focused mainly on the concept of change. The faculty deans expressed their support and commitment to the changes introduced at the central level. They seemed to understand that change is imminent and in order to adapt to new circumstances, including a demand for income diversification, the university had to rethink its *modus operandi*. North American and British universities were named as the points of reference in this respect:

> What the European Union eventually wishes is that there is a greater entrepreneurial spirit that the American society has shown so far... (TM2)
>
> I think revenue generation and fundraising is on the agenda of Portuguese universities and of the University of Lisbon. American universities have this perspective, the idea of patrons, donations, alumni who continue to support the university. It also happens a lot in the UK. Alumni reunions are very important in the Anglo-Saxon world. University managers invite them not only for parties but also for other kinds of interventions. Help can be offered without a bank transfer. It can be in a form of construction, transportation, licensing offered to the university. (TM7)
>
> For the university the paradigm has changed: it is no longer an educator of people who are employed in public or private sector. What we will witness more and more is a university whose students would have a capacity to create their own jobs. The state and the private sector do not have a business structure to absorb all the graduates. I think we should create business structures connected to university. (FD10)

The interviewees at both levels have also given their support to more extensive cooperation with the external actors:

> I do not criticise the fact that the university has to be accountable to society. I understand the fact that the state cannot pay everything, because the money is not elastic. (TM3)
>
> The university has to be open to the outside world and not limit itself to teaching and research but also have a wider activity which it has the ability and competence to do. (TM7)

The findings have shown that the organisational context for income diversification is quite heterogeneous. It is contingent on the faculties' research or service provision potential, existing norms and leadership style. However, all academic units have demonstrated efforts in the direction of income diversification. The question is therefore whether these efforts of different faculties can be sustained as a collective entrepreneurial culture and replicated over again.

7.5. Summary of the Findings

The analysis of the interviews conducted at the University of Lisbon showed that income diversification is perceived to be an important activity which is mostly conducted in order to supplement the state budget.

Despite the fact that UL has a strategic plan, there is no concrete strategy for income diversification. In fact, the responses from the Rector's team demonstrate that there is no common understanding of income diversification among top managers. This group of interviewees was able to identify the need for additional income but was unclear as to what the university is doing about it. Income generation activities are predominantly the responsibility of each faculty. Indeed, the faculty deans were clearer about the efforts they are making in order to attract more financial resources.

In general, a greater openness to various funding opportunities is mentioned, both on the part of the central administration, through the attempts to consolidate the university around common goals, create a uniform identity, promote the university image; and individual academics, through greater involvement with the external environment.

In relation to success factors, the interviewees mentioned mostly internal factors, such as quality of human resources and infrastructure, support from the top management, university's prestige and reputation, and income diversification culture.

In terms of constraints to income diversification activity, the interviewees named: staff policies, both in terms of career progression rules and internal staff appointment policies; lack of necessary skills to manage income diversification activities; a high level of bureaucracy; uncertainty of funding; unsupportive organisational culture, and disciplinary mix. It was also mentioned a lack of incentive system for other than research and teaching activities.

As to the governance structure, it has been changed according to the new legal regime. The change in law was used to strengthen the central administration's role

in the university and streamline management. Concentrating resources, both financial and human, at the centre can arguably allow top management to plan strategically, to take reigns in their hands, and to mobilise the university around common goals. These changes are a sign of departure from a pre-entrepreneurial culture towards an entrepreneurial one. According to Davies (2001) pre-entrepreneurial culture is characterised by “low corporate/central identity and presence, with a tendency to be non-interventionist in most areas of university life”.

A similar process can be observed at the faculty level. The faculty deans centralise their decision-making power and make attempts to organise *ad hoc* income generation activities by either gathering information systematically; creating new staff posts; introducing objectives regarding this type of activities or creating strategic funds from overheads.

In general, the respondents did not see any problem in the university having a highly decentralised structure; but some of them mentioned that high decentralisation and the size of the university may slow down communication and cultural change.

The interviewees also mentioned the areas in the organisational structure that could be improved. These areas are technology transfer and international relations.

At the current level of income diversification, the interviewees did not see any risks in this activity. However, they named some potential risks that may appear if the university is forced to go further on the road of income diversification. The risks that were mentioned are: mission deviation and restrictions to teaching and research autonomy. In general, the interviewees were supportive of income generation activities as they provide not only financial opportunities but opportunities for future work for students and “reality check” for scientific innovations.

The interviewees felt that the state does not play the role it should in relation to higher education institutions. They evaluated relations with the state as unstable and unreliable. This concerns funding policies in the first place.

In terms of cooperation with society and industry the interviewees demonstrated a reserved outlook due to the economic crisis in the first place. On the other hand they believe that income diversification should continue and become more professional and the academics together with administrators should be more creative in finding new income sources. The interviewees also admitted that developing income diversification activities require time; relationship with external partners need to mature and both parties need to gain trust.

In the following chapter we will compare and discuss the findings from both case studies.

CHAPTER 8 – COMPARING RESULTS

The aim of this research, defined in Chapter 5, was to explore the phenomenon of income diversification in Portuguese universities and how income diversification may influence the internal structures and processes through the perceptions of their top and middle managers. It was proposed to investigate this theme by asking two broad research questions: how do universities raise extra income and how are their structures and processes influenced by the need to generate additional income? The first research question was subdivided into the following sub-questions designed to further clarify the phenomenon of income diversification: What are the priorities and strategies of revenue diversification? What are the main sources? What are the incentives and success factors? What are the constraints? The second research question contained two sub-questions: How the need to generate additional income influences governance and organisational structure? How does it affect processes within the university? In this chapter we will present a comparative analysis of the data collected at the University of Aveiro and the University of Lisbon and discuss the main findings. The chapter is organised in the following way: in the first section we present data on income diversification practices at both universities, namely through looking at strategies they employ. Section 2 looks at incentives, success factors and constraints reported by the interviewees. In Section 3 we discuss organisational changes at both universities triggered by the need to diversify income streams. Finally, in Section 4 we try to compare where each university stands in terms of income diversification activities.

8.1. Income Diversification at UA and UL: Similarities and Differences

The analyses of interviews from both universities showed that income diversification is perceived crucial in at least two important ways: to guarantee financial sustainability and to support institutional development. The data also demonstrated that there is a growing preoccupation on the part of top and middle managers with finding alternative funding sources and developing the existing ones. The main reason for increased interest in income diversification, according to the interviewees, is the financial constraints that Portuguese higher education

has been experiencing in the past decade. In Chapter 4, Section 4.3 we discussed the decrease in public share in higher education institutions' budgets, along with expenditure restrictions and transfer of pension contributions to higher education institutions. In the case of UA raising 50% of earned income is also a condition imposed by its public foundation status. Given this background, it was expected that universities would incorporate an income diversification strategy into their institutional strategies.

It can be argued that income diversification should be part of an overall institutional strategy as developing and maintaining different income streams requires careful planning, capacity building and monitoring. For example, the EUDIS project cases (Section 3.1.3) showed that institutions that included income diversification in their strategic development plans linked with concrete action plans were more aware of income diversification throughout the institution. These institutions also carried out more activities leading to greater diversification or generated higher income from additional income streams (Estermann & Pruvot, 2011). Some examples of concrete measures are: setting up income diversification committees, creating income diversification manuals, developing internal incentive schemes, etc.

At UA there was no formal strategic plan at the time when the interviews were conducted, but, according to the interviewees in top management positions, other documents, such as the Rector's candidacy programme and the Contract-Programme signed with the Ministry, served this purpose. Both documents set goals for the university and income generation was one of these goals (see Chapter 6, Section 6.3). However, the interviewees at different organisational levels demonstrated different knowledge of the existence of the strategy to achieve these goals. The Rector's team had the most consolidated discourse about the university's strategy and its elements. The respondents in the top management positions especially emphasised the university's involvement with the region, growing cooperation with external entities and the importance of quality research in attracting research funding. At the departmental level the heads of departments were aware of a general direction in the institutional development but

they could not name any specific documents or any specific guidelines. The heads of departments pointed out that applying for research funding or cooperating with external entities is often an individualised process, where a researcher himself decides on his goals and priorities. As one of the interviewees stated, "*Individual researchers and research groups have their own dynamics which go beyond the university's central strategy. This translates in the creation of new spaces for cooperation, obtaining new contacts, being involved in different projects*" (HD10).

The fact that at UA top management had a better knowledge of the institution-wide strategy than middle management may indicate several things: first, strategic planning activities may not be communicated to the whole institution and second, top management may have presented an institutional response which is more positive than perceptions at other institutional levels. In any case, communication between the centre and the basic units was considered by interviewees in middle management positions as needing improvement.

At UL a strategic programme was adopted in 2008. However, there was no special attention paid to income diversification strategy in this programme. As one of the interviewees commented: "*(…) maybe each member of the academy has a strategy ... but in institutional terms it cannot be said that it exists. There is a more favourable climate, there is more concern on the part of management and the Rector, there are conversations in this sense, but I do not see anything concrete*" (FD4).

Members of the Rector's team presented different opinions about income diversification. While the assumption that income diversification is a necessary and an inevitable route in the current economic climate was shared by the respondents, there was no common understanding of its meaning and strategies to follow. The term "income diversification" was understood by interviewees in different ways: some members of the Rector's team identified it with "commercialisation" practices, others with heavy marketing techniques and fundraising. There was also divergence regarding the means and strategies to follow: some top academic managers tried to emphasise that due to the university's established reputation, there was no need to use an "aggressive"

approach towards income diversification; other interviewees advocated a more pro-active behaviour. In relation to the above mentioned divergences, Schein (1990) noted that it is quite possible for members of the organisation to hold conflicting values and opinions while having complete consensus on underlying assumptions. However, the above mentioned conceptual differences indicate that there is no common narrative about income diversification at UL, which can hamper successful communication with external actors at the institutional level, as well as complicate internal communication of organisational goals. According to Clark (1998), a strengthened steering core is one of the key elements of a successful entrepreneurial university. As universities' complexity has increased and the pace of change has accelerated, the need for a greater managerial capacity has deepened. Therefore, if revenue generation is one of the priorities, top management needs to develop a uniform understanding about it in order to be able to steer the institution towards financial sustainability.

At faculty level we found that deans were positive about income diversification. Most of them did not name any formal strategy at their faculty but named various initiatives aimed at attracting alternative revenue sources. They were also aware of success factors and especially constraints for income diversification activities. This is not surprising, as deans are responsible for their faculty's financial management.

We can see that at both universities, regardless of the existence of a formal strategic plan, there was no concrete strategic programme or an action plan for income diversification. By concrete strategic programme we mean the existence of an analysis of the institutional strengths and weaknesses in relation to different revenue sources; identification of short- and long-term goals; market research; financial forecasting, etc.

Interviewees at both institutions did not mention that they were going to elaborate an income diversification strategy or plan. Despite this fact, at UA, the institutional discourse regarding income diversification was much more consolidated than at UL. This difference may be explained by the fact that UA is a centralised university with a quite strong institutional idea projected to the outside and cultivated inside,

namely, the idea of being a regional, entrepreneurial, and a proactive university. Following Clark's argument, UA has managed to create an "entrepreneurial narrative – an affirming, convincing story that depicts to university patrons and the general public what a modern progressive university is like" (Clark, 2001). On the contrary, UL has a different tradition and a different narrative of a classical university composed of highly autonomous units. As mentioned in its self-evaluation report, a common identity has always been a problem (Chapter 7, Section 7.1.2). A lack of a strong common identity is not particularly a disadvantage during periods of stability, when competition for students and resources is relatively low. However, it may become a handicap when competition accelerates and multiple funding sources need to be pursued. In such unstable reality a strong institutional identity presents several advantages: it brings the focus to an institution; helps communicate institutional values to external stakeholders; and helps to position an institution among its competitors.

In relation to entrepreneurial strategies, Davies (2001) suggests that there is a spectrum of positions that universities and their leaders may adopt to develop them. These range from the so-called Big Bang approaches to Incrementalist approaches. The Big Bang approach is typified by a comprehensive and integrated grand strategy from the start: highly integrated vertically and horizontally; explicit with a strong PR dimension, highly rational and driven from the top and with a differentiated organisational structure to deliver the strategy. Incremental possibilities are based on so-called "low threshold" approaches, designed to reduce barriers gradually and empower colleagues to get involved.

Both universities' strategic approaches seem to fall into the second category because the encouragement to get involved in revenue diversification activities is done mostly informally, through conversations and not through formal directives, incentives or penalties. However, if revenue generation is becoming one of the priorities, in the interviewees' words, it is advisable, from the researcher's point of view, to move to the Big Bang end of the spectrum with the help of a comprehensive and integrated strategy. This thought is corroborated by the findings of a recent EUA study (Estermann & Pruvot, 2011) that states:

> Diversification should begin with a strategic analysis of the status quo, the institutional strengths, specificities and opportunities, as well as a scan of the competitive environment.

The absence of a concrete revenue diversification strategy at the universities studied can be explained by several factors. First of all, it can be argued, that the difficulty of strategic planning lies in the very nature of higher educational institutions. They have been perceived as having ambiguous goals (Cohen & March, 1974), loosely coupled structures (Weick, 1976), different traditions as well as structures (Clark, 1983). Therefore, it is difficult to create strategies in academic institutions, due to their fragmentation, the politics and the garbage can phenomenon. Moreover, the resulting strategy may be fragmented due to the fact that many different people get involved in its elaboration: from administrators to individual professors.

However, various authors suggested that strategic planning focused on the quality as well as on the capacity to satisfy each time more and complex demands in a context of growing competition, is today an essential need of higher education institutions. For example, Daft (2007) argues that serious planning becomes more important in a turbulent environment, even though a plan will not last long. Planning helps managers anticipate and be prepared to respond to changes. Lack of planning makes more sense in a stable, predictable environment.

Another reason for the absence of a concrete strategic plan can be found in historical development of this activity at Portuguese higher education institutions. In Portugal, according to the Decree-Law 183/96 and Law 113/97, public higher education institutions were required to submit a Development Plan to the Ministry. However, as previous research reports, the ministerial guidelines in preparation of these plans were not always followed by the institutions and the Ministry did not give any serious consideration to these plans and did not act upon them (Machado & Taylor, 2010). The same research concludes that while some sincere efforts towards strategic planning were found, they were accompanied by naive misunderstandings, inflated self-reporting and fragmented implementation in many cases. Nevertheless, while only a minority of higher education institutions was

actually pursuing a strategic planning process, many expressed a respect for it and a desire to begin (ibid.). Therefore, it may be a lack of tradition, experience and skill in writing strategic documents that prevented universities from having one for income diversification.

Excessive government regulation in terms of student numbers, staff positions, salaries, etc., can be cited as another reason why strategic planning can be complicated for Portuguese higher education institutions. According to a recent study by the EUA (Estermann et al., 2011), Portugal is in 21st place out of 28 European countries in terms of academic autonomy, which includes the ability of higher education institutions to decide on overall student numbers, admission mechanisms, and capacity to introduce and terminate programmes among others. It occupies 18th place in terms of staffing autonomy which relates to capacity to decide on recruitment procedures, dismissals, promotions and salary levels.

The respondents of the study also reported a general mistrustful relationship with government authorities, which resulted from a state interference model of higher education governance (discussed in Chapter 4, Section 4.4.1) characterised by intermittent policies. Additionally, it was felt by the interviewees that the existing funding model (annual block grant disbursed in monthly instalments) hinders universities' capacity for long-term strategic planning. The interviewees preferred multi-annual funding, which presupposes a high degree of financial autonomy.

According to the interviewees at both universities, data collection and reporting of income streams, especially from third mission activities, was not well developed. It can be argued that without knowing the status quo it is difficult to plan. It was mentioned by the interviewees that it was difficult to disaggregate data on different income streams due to the requirements of public administration accounting. It happened sometimes that one and the same activity had to be accounted under different headings.

The findings show that despite all the above mentioned difficulties with strategic planning, there are efforts at the institutional and basic unit level to generate

additional income. Different initiatives in relation to various income streams are described below.

8.1.1. Teaching

The analysis of data gathered from both universities showed that income from tuition fees occupied a significant share in universities' budgets. In fact, it was the second largest source of income for UA and UL after the government block grant. In terms of their contribution to the financial health of studied universities, tuition fees were reportedly used for payment of staff salaries and day-to-day operation of departments and faculties.

Given the degree of criticality of this income source, attention to students' needs and requirements has become increasingly important, especially in the climate of financial stringency, enhanced competition and fluctuations in student numbers. According to the interviewees, the competition for students has noticeably intensified among Portuguese universities in the past years and students began to be increasingly seen as "consumers".

Based on interviews it was possible to identify several approaches the universities follow in order to attract more students and maximise their tuition fees income. An adaptation of undergraduate study programmes to market demand is one of those approaches and took place at both institutions. For example, the Department of Languages and Cultures at UA restructured its study programmes in a more applied way so that they can be more marketable. It was also mentioned that UA has always tried to be a pioneer in several fields, such as telecommunications, environmental studies, and ceramics, which differentiates it from other universities and helps to attract students. At UL, the so-called vocational drift, which is a tendency for traditional universities to adopt more applied missions (Codling and Meek, 2006) could be observed. The interviewees reported the introduction of study programmes in non-traditional fields for their university, such as management and engineering, for example. In this respect, a merger of UL with another Lisbon university is illustrative. It is believed the merger will almost double

the student population and broaden the study programmes offer, as well as strengthening the research capacity.

The interviewees also emphasised the importance of non-degree courses, tailor-made courses for business and non-integrated Master's and PhD (third cycle) programmes for generating extra revenue from teaching activities. For these types of programmes universities can set their own tuition fees. In order to attract more students some faculties were using market projection and marketing techniques. The interviewees at UL mentioned difficulties in introducing more non-degree courses administered by faculties due to high teaching loads and regulations of staff remuneration. However, at both institutions non-degree teaching activities are also offered outside academic departments, in outreach units (for example, UNAVE at UA and Institute of Vocational Orientation at UL).

In what concerns international students, who bring significant revenue in some countries, the interviewees reported some restrictions, such as the existence of *numerus clausus* and the impossibility of charging differentiated tuition fees for undergraduate studies[25]. In terms of 2nd and 3rd cycle studies, the interviewees pointed out a growing cooperation with the Portuguese-speaking countries as well as collaborations with other, national and international higher education institutions, in administering master's and doctoral programmes.

8.1.2. Research

Research activity has presented a significant growth in the past decade, as we can see from tables 20 and 21. The increase in research funding has provided universities with opportunities to capture additional income. Research activities were seen by central administration at both universities as one of the major engines of institutional success and development. A strong research component was believed to attract better national and international students, collaborations

[25] An EUA study (2013) reports that as a result of lobbying by the HE sector, and by CRUP in particular, government has plans to introduce an *Estatuto do Estudante Estrangeiro (Foreign Student Statute)*, which will specify the conditions on which foreign students (from within and outside the Portuguese-speaking countries) can access Portuguese HE and at what cost. This could bring Portugal into line with many European countries which impose higher tuition fees on 'foreign' students, on the grounds that they should not be subsidised by the national tax-payer to the extent that 'home' students might be.

with industry and business, and a greater number of research projects funded by national and international research bodies.

At the time of the interviews both universities were taking steps towards strengthening the research capacity and consolidating their research potential. UA was planning the creation of a Doctoral School and UL established five strategic areas. These moves were not dictated by external regulations, as there are no formal requirements from the funding agency for institution-wide research strategy or development plans. The general understanding among institutional leadership seems to be that the need for some sort of organised research strategy is required by a drastically increased national and international competition for research grants. It forces institutions to look for areas in which their competitive advantage is stronger and where they have or could achieve critical mass. Creating critical mass in research and collaborating with large international projects and research teams seems to be crucial for securing project funding from the European Union.

According to one of the interviewees at UA, "*the Doctoral School will have a publication and quality control strategy. Everything was disorganised, each department would open its own doctoral programme; we do not know what professors teach the classes and how the programme is being run. The School will bring order to all this and will let us unify the system*" (TM8). It was also reported that strategic priorities for research will be aligned with regional priorities, where it is important to provide continuity and maintain a trustful relationship created over the years.

At UL, strategic areas seem to have the same purpose as the Doctoral School at UA, i.e. provide means for overseeing university research activity. They are also expected to stimulate collaborative research between different disciplines. The merger with the Technical University of Lisbon was also believed to reinforce existing research fields, but mainly, to expand their diversity.

At the middle management level, the heads of departments and the faculties' deans pointed out, that individual researchers are guided more by the priorities of

the national Science and Technology Foundation rather than by institutional conditions.

In terms of actual research income, most of it is assigned to particular purposes. At UA some heads of departments said they cannot count on research income, as overheads are retained at the centre and the rest is allocated according to budget lines. Departments that did charge some overheads reported reinvesting this income in equipment or other research related expenses. At UL overheads used to be paid to the University Foundation and to the Faculty of Sciences Foundation, semi-private entities that managed research projects. With the changes prompted by RJIES, faculty deans hope to charge overheads.

8.1.3. Third mission

Third mission activities are mostly connected with regional development and cooperation with society at large. The idea of intensifying relations with the regional authorities and businesses was emphasised at both universities, but especially at UA.

Since its creation in 1973, the focus of UA's mission has been on contribution to regional development. As we can see from Section 6.1.1 the region's influence and participation in the university's development was quite strong as well. UA has accordingly established an infrastructure to interact with the region, which includes concentration on relevant research fields for regional development, a business incubator, later a technology transfer unit, a pro-rectory for regional development and the forthcoming Science and Technology Park. Based on the above facts and on the documentary analyses, the University of Aveiro appears to have had a coherent and consolidated strategy regarding third mission activities.

The interviewees also mentioned the importance of EU Structural Funds in fostering the university's collaborations with the region. In the words of one of the interviewees, "*We want to take advantage of this external funding to boost the relationship between the region and the university, so when this funding ends the mutual trust and knowledge created will serve as a solid base for future relations*" (TM2).

Creation of common structures, such as the business incubator network, provided spaces for the university and the surrounding community to work closely together, exchange ideas and solve problems. Another project to construct an environment where research and industry could come into close contact is the Science and Technology Park.

In terms of third mission activities, UL has a different profile from UA of cooperation with society: there are many service provision contracts in the areas of law, geography and territorial planning, and arts and humanities; there are also medical services provided by medical sciences faculties (Medicine and Dentistry). In UL's interviews there was less emphasis on cooperation with industry but more on cooperation with municipal councils. This can be explained by the fact that interviews were conducted mainly at faculties of soft, applied sciences, as well as by characteristics of the surrounding region. As mentioned in Section 7.1.1, the Lisbon Region presents the highest activity and employment rates for workers between 25 and 35 years of age, and the service sector is responsible for ¾ of the global employment in the region.

Third stream activities do not bring a great amount of revenue yet, but their share has grown over the past years at both universities. As noticed by one of the interviewees, *"an Achilles' heel of many Portuguese universities, I think, is contract research, contracts with business companies, licensing and patents"*. Income from contracts is usually the one with fewer strings attached, which means that the university, faculty, or department can spend it according to its own priorities. In relation to licensing and patents, interviewees from technology transfer offices at both universities noted that this type of activity requires a sizable investment both in terms of funds and human resources.

UA and UL have different institutional profiles, location, size and history which influenced their orientation in relation to third mission activities. UA is strongly marked by its region while UL's location in the capital provides it with opportunities to cater for mostly service oriented public and private companies. However, stereotyping institutions by type would be a mistake as both universities engage in various types of activities.

8.1.4. Philanthropy

The interviewees at the top management level at both universities mentioned that they would like to explore fundraising opportunities. The importance of fundraising was emphasised in relation to the context of diminishing share of public support and the need to diversify income streams. However, the respondents pointed out that philanthropic giving to universities is not, unfortunately, part of the Portuguese culture. They also felt that the current economic context might not be favourable for this type of activity.

Nevertheless, both universities began by taking steps towards fundraising, namely by establishing closer relations with their alumni. UL created a university-wide alumni association, as opposed to faculty based ones. UA reported establishing a database of alumni. However, the interviewees did not mentioned setting up a special office dedicated to fundraising, hiring or appointing specially trained staff or launching fundraising campaigns, from which we may conclude that this funding stream remains in the plans and is not being fully explored yet. At UA top managers felt that very little has been done so far for attracting philanthropic giving from private donors.

At the middle management level the interviewees did not mention fundraising activity at all. This can be explained by the fact that philanthropic giving does not make a significant part of university budgets. Another reason may be that public relations, marketing, and alumni relations activities are considered to be central administration's domain.

At UL the focus on fundraising was noticeably greater than at UA. In interviewees' opinion, the university's prestige, history, and existence of many prominent alumni, positions it favourably for this activity. The respondents also mentioned that besides monetary gifts alumni can and are already contributing with gifts in kind[26].

[26] Gifts in kind are a kind of charitable giving in which, instead of giving money to buy needed goods and services, the goods and services themselves are given.

The interviewees at both universities also considered the obligatory inclusion of external members in the main governing body to be a positive development. They felt that this change could be beneficial for universities in terms of attracting private capital, including gifts and donations.

8.1.5. Summary of income diversification initiatives

Table 30 presents universities' initiatives to diversify income sources.

Table 30 - Income diversification initiatives, a comparative table by institution and type of source

Income sources	UA	UL
Teaching	▪ Rationalisation of course offer ▪ Courses in pioneering areas ▪ Non-degree courses ▪ Maximising tuition fees (by charging maximum allowed amount)	▪ Rationalisation of course offer/closing programmes with few students ▪ "Vocational drift" ▪ Non-degree courses
Research	▪ Doctoral School ▪ Internationalisation of research teams ▪ Aligning research fields with regional development and innovation	▪ Creation of strategic areas ▪ Merger with another university to strengthen research base ▪ Internationalisation of research teams
Third mission	▪ Business incubator ▪ Technology transfer office ▪ Science Park ▪ Collaboration with the regional authorities	▪ University wide knowledge transfer office ▪ Collaboration with municipal councils
Philanthropy	▪ Alumni database	▪ University-wide Alumni Association ▪ Cooperation with private foundation for student scholarships
Other	▪ Not mentioned by the interviewees	• Renting of spaces for conferences, seminars and cultural events

We may see from the above table that some elements of revenue diversification strategies are similar to both universities, namely, maximising tuition fees through adjusting curricula to market demand and offering non-degree courses; internationalisation of research, organising a research strategy and trying to

engage alumni. However, some approaches differed in important respects. For example, top managers at UA emphasised regional cooperation, technology transfer and innovation potential of the university; while at UL the accent was made on fundraising, cultural cooperation and non-degree courses. Differences in strategies appear to reflect such factors as institutional history and culture, location and administrative philosophy and leadership.

Many of the activities cited as elements of universities' revenue diversification strategy appear at the faculty level, except for those that can only be pursued at central level (marketing partnerships, real estate development). In general, departmental and faculty strategies appeared to be shaped by field, research intensiveness and pro-activeness of the academic staff.

The following section will present a comparison of perceptions regarding success factors and constraints.

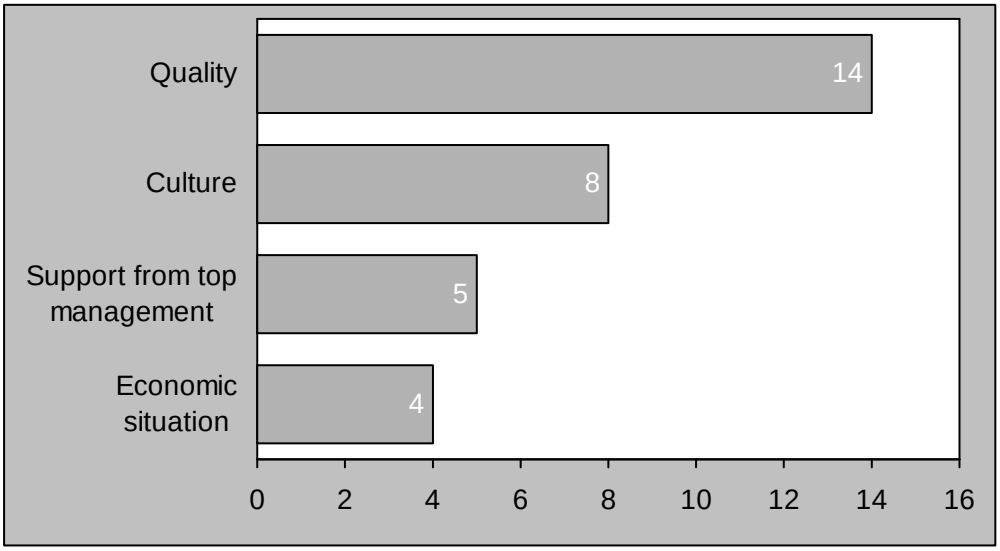
8.2. Success Factors and Constraints

In this section we turn to the factors that interviewees perceived as facilitating or inhibiting for income diversification activities at their institution. For the purpose of this study we named these factors "success factors" and "constraints".

8.2.1. Success factors

Business literature defines "success factors" (the precise term is "critical success factors" – CSF) as a limited number of characteristics, conditions, or variables that have a direct and serious impact on the effectiveness, efficiency, and viability of an organisation, programme, or project (Rockart, 1979). In our case, we consider success factors to be the elements that are necessary for a university to engage in income diversification activities and sustain them for a period of time. The interview analysis showed that the mostly cited success factors at both universities were quality, organisational culture, support from the top management and the economic situation (Figure 12).

Figure 12 - Success factors



8.2.1.1. Quality

More than half of respondents named quality as the most important success factor. They referred first of all to the quality of human resources and services that universities provide; but also to the quality of infrastructure and of the institution as a whole (institutional brand). Given the importance the interviewees attributed to quality, it was interesting to check what quality assurance systems both universities have in place, which areas are assessed and how it can be related to income diversification success.

Rockart (1979, p. 85) stated that “the critical success factors are areas of activity that should receive constant and careful attention from management. Information about their status must be made available in a timely fashion at the appropriate levels”.

In both universities an internal quality assurance system monitors, in the first place, teaching and learning. The quality of research is assessed through the external evaluation coordinated by the FCT. The non-academic staff is assessed through a new national system of evaluation of non-academic staff (Integrated System for the Evaluation of Performance within Public Administration – SIADAP).

At the time of the interviews, there were no formal quality practices concerning third mission activities (e.g. technology transfer) and no regular data gathering at the central level which means that information on initiatives developed by different basic units cannot be used for strategic planning.

Third stream activities are frequently associated with negative consequences of a financially driven, commercial outlook, which may endanger academic values (see Chapter 3, Section 3.1.4). The above poses for universities challenges of crisis prevention and reputation protection in potentially all entrepreneurial domains (Davies, 2001). This would seem to argue for robust quality processes for audit, assurance and evaluation. However, this quality process has to maintain a certain degree of flexibility necessary for entrepreneurial activities.

In short, the quality dimension is considered to be the most important element for at least two reasons: as a means of collecting and comparing standardised information about various university activities and communicating this information to the external environment (as both universities demonstrated a growing preoccupation with their external image).

8.2.1.2. Culture

Another success factor that was mentioned by a significant number of interviewees is organisational culture. Culture can be defined as a pattern of basic assumptions, invented, developed or discovered by a given group, as it learns to cope with its problems of external adaptation and internal integration that has worked enough to be considered valid (Schein, 1992). The strength of an organisational culture is a function of the stability of the group, the length of time that the group has existed, the intensity of the group's experiences of learning and the strength and clarity of the assumptions held by the founders and leaders of the group (Schein, 1990).

The integrated entrepreneurial culture is one of the components of Clark's constituents of universities' transformation (1998). The entrepreneurial culture is generally characterised not only by the willingness to take risks and to experiment

with new things, but by the ability to evaluate those ventures, learn collectively from experience, and transfer the essence of experience across the university (Davies, 2001).

At UA the organisational culture was perceived by the respondents as propitious to income diversification activities. The interviewees were unanimous about the innovative spirit of their institution and about its uniqueness in the national higher education landscape. As mentioned previously in Section 8.1, the university managed to create an entrepreneurial narrative, which is supported by different organisational levels.

At UL the entrepreneurial organisational culture was mostly referred to as a component that is lacking for successful income diversification. It was also at UL that the interviewees complained more of the lack of philanthropic and entrepreneurial culture at the national level.

8.2.1.3. Support from the top management

In relation to support from the top management interviewees at both institutions felt that they have supportive central administrations.

At UA, support reportedly manifested through advancement of funds for research projects, swift decision-making and trustful relationship (see Section 6.4.1.3.).

At UL, the interviewees mentioned a supporting climate created by the current Rector's team in relation to entrepreneurial activities. They also referred positively about efforts of central administration to promote the university's image both nationally and internationally.

It was also much appreciated at both UA and UL that individual researchers have an extensive autonomy in terms of research projects, consultancy projects or other initiatives. At UL faculty deans had even greater autonomy as all financial management is done at the faculty level as well.

While non-interventionist style of leadership creates a trustful relationship between administrative and academic organisational sub-cultures, the question is whether it

is the correct approach if universities' goal is to increase revenue generation from alternative sources.

8.2.1.4. Economic situation

Finally, a favourable economic climate was considered by respondents to be a necessary condition for successful income diversification. By favourable economic climate the interviewees meant both the availability of funding from the government and the willingness of the wider society to invest in higher education.

As public funding represents the biggest share of universities' budgets, fluctuations in public allocations were perceived as having the biggest impact. The top managers at UA noted that there was a minimum threshold of public funding that guaranteed the university's normal functioning. To them this threshold was at least 50% of the total university budget.

The interviewees demonstrated preoccupation with the private sector's ability to support higher education in the current economic climate. The top managers at UL reported that, for example, the funding base of private companies and philanthropic foundations has been affected by the economic crisis, which had an impact on their donating capacity.

In Section 6.4.1.3 we also showed examples of universities founded in unfavourable economic contexts but which were able to overcome the difficulties due to their entrepreneurial outlook. This shows that the link between economic prosperity and successful revenue generation is far more complex that may seem at first sight.

As we will see in the next section, the economic situation was also referred as a constraint to income diversification.

8.2.2. Constraints

Having looked at the interviewees perceptions regarding the success factors, we analysed the elements that the respondents consider as constraints for development of income diversification activities. Based on the interview data the constraints were grouped around external and internal dimensions. The external

dimension relates to constraints imposed by the government or society. The internal dimension refers to institutional characteristics. Each dimension was then subdivided into sub-groups.

Legal constraints are the ones imposed by the legislative framework and administrative regulations, for example the academic employment statutes, the legal regime of higher education institutions, etc.

Financial constraints comprise existing funding arrangements, availability of funds and general economic situation.

Cultural constraints relate to cultural characteristics, both at national and organisational levels which are perceived as barriers to income diversification.

Finally, *managerial constraints* refer to difficulties of managing income diversification activities at the institutional level.

Table 31 below exemplifies interviewees' perceptions about each constraint.

Table 31 – Constraints to income diversification

Dimension	Group of constraints	Constraints	UA	UL
External	**Legal**	▪ **Career progression rules**	**Rigid rules of career progression and lack of incentives to engage in income diversification activities were seen as one of the major constraints.**	
			"From the point of view of a scientific career this type of work [service to community] in many cases does not count in terms of evaluation and thus represents an additional effort asked of an academic." UAHD13	*"Current Statutes do not allow for payment of extra hours of teaching of non-degree courses. Because of this I lose a significant funding source. If I cannot pay professors, I would not try to convince them to deliver non-degree and specialisation courses. But I lose a lot of money with this." ULFD10*
		▪ **State imposed bureaucracy**	**The increase in accountability produced a lot of bureaucracy. At the same time the number of administrative staff has not increased much. The burden of reporting fell on academic-managers which resulted in a lack of time for planning and communication activities, according to the interviewees. Additionally, interviewees felt that the state controls too tightly the day-to-day life of universities.**	
			"From the individual point of view it is very complicated and as I have referred before, in particular management roles start to have a great degree of importance in relation to multiple tasks one has to do. This is negative. It is rarely positive." UAHD9	*"I think institutions have to be responsible and accountable to the society and the state, but they should also have some autonomy. Sometimes I feel that there are too many bureaucratic constraints: civil service rules, reporting rules, etc." ULFD8*
	Financial	▪ **State funding**	**Current funding arrangements were seen as inadequate for successful income diversification. For example, annual funding as opposed to multiannual funding was reported to hinder universities' ability to plan their activities strategically. Funding cuts are believed to be detrimental for maintaining basic infrastructure (equipment, buildings, staff salaries) and for building income diversification capacity.**	
			"If the 50% from the state budget do not come it will be the end, because income from other sources varies	*"We have fought so much in the past years for having something similar to this [contract funding] and for having financial stability. During years we did not know what it is*

			from year to year but it is never enough…" UAHD7	*[the budget] going to be and what the government would invent to cut a little bit more."ULTM3*
		▪ **FCT funding**	**The interviewees complained about high level of uncertainty in relation to project funding from the FCT; delays in payments and reimbursements.**	
				"FCT is terribly late with payments and therefore we need to have funds to advance money for projects. It makes things more difficult. I feel there are too many constraints from how FCT functions: too many reports, justifications of money transfers, and so on." ULFD8
		▪ **Economic situation**	**An unfavourable economic situation was seen as a negative influence on income diversification. Economic crisis is characterised by retraction of expenditure by business and foundations, low economic growth and drop in families' income. Interviewees feared it would affect public funding of higher education, as well as the willingness of private entities, including students and their families, to invest in it.**	
			"University is just an institution in a country which depends on its surroundings starting from the world economic situation like the one we are living right now, national dynamics in terms of business activity, regional dynamics. We are just one factor and no matter how much good intentions the university has, it is not enough." UAHD10	*"We are facing now an inevitable problem, which is a serious and profound economic crisis. Therefore, companies and different foundations will restrict to the maximum their expenses which they do not consider to be essential. When times are prosperous there is available money to invest in interesting projects. Now everybody is cutting expenses with advertising, sponsorship, social subsidies, bonuses, etc. It is not the best time to obtain funding." ULTM7*
		▪ **Portuguese culture**	**The interviewees criticised Portuguese culture for the lack of philanthropic tradition. In their opinion the absence of such culture deprives universities of a significant funding source. Fundraising opportunities were mentioned more by the interviewees from UL. Other aspects of Portuguese culture were commented on as well, for example lack of organisation.**	
			"Very little, very little. We do not have much of this culture. If we go, for example, to the United States,	*"It is a culture that does not appreciate this [entrepreneurialism]. The Portuguese culture has always*

Internal	**Cultural**		*fundraising is a normal activity." UATM3*	*been to go work for the state and stay there." ULHD10* *"University is a mirror of the Portuguese society and its organisation. We are very complicated people; we lose a lot of time because we are disorganised in general. We need a better organisation to become more productive." ULHD08*
		▪ **Differences between business and university culture**	**Such differences between academic and business culture as deadlines, theoretical versus applied character of research, make cooperation between universities and business and industry complicated. Service provision orientation on the part of companies, instead of research and development.**	
			"Sometimes it may not be compatible. I can get money through business and at the same time do research with them. They do not like it very much, they want results for yesterday, very fast things and science is something that takes time, it has a very special pace." UAHD16	*"There is no doubt that academic culture is based on the logic of scientific production, which depends on quality but does not depend on economic valorisation." ULHD4*
	Managerial	▪ **Lack of necessary skills**	**Multiple income streams require new competences from academics and administration. The lack of necessary skills was especially noted in the areas of research projects management, technology transfer and institutional development (fund raising; image creation, etc.).**	
			"It will be advantageous to create an international projects' management office which would filter what is important for different researchers and circulate this information, but most of all teach the researchers to take their projects to other competitions." UAHD10	*"There are few people able to manage European level projects. I have been searching on the job market for people with this kind of expertise and it is not easy." ULFD8*
		▪ **Lack of information/awareness**	**Lack of information about funding opportunities (UA) or knowledge transfer opportunities (UL) was named as one of the constraints to accessing alternative income streams.**	
			"There are various competitions at the international level. I am sure that many researchers do not apply	"Technology Transfer Offices have to inform scientists of

			for them because they are not aware." UAHD10	opportunities, have to work closely with them
		▪ **Staff management policies**	**The interviewees in middle management positions felt that difficulties in renovating academic staff by hiring new staff members may be an obstacle for a more effective revenue diversification and internal dynamics.**	
			"We need the central administration to help us recruit new people who are dynamic, who would pull projects, would move, and would bring good contacts. This is how I would imagine it. Two or three people would help a lot, would realise these plans. We are becoming old [laughs] and the dynamics go down." UAHD6	*"People are retiring and it is difficult to substitute them. And we do not have any control in relation to who retires. There are departments almost on the verge of extinction when others have an inflated number of staff." ULFD6*
		▪ **Lack of time**	**Work overload due to accumulation of teaching or administrative tasks, or both prevents academics from applying more efforts to third stream activities. Some interviewees reported that their academic units cannot respond to the existing demand of consulting or other services due to the lack of time.**	
			"There are multiple internal tasks and therefore this is a limitation [for developing third mission activities]." UAHD10	*"The bureaucracy and administrative burden is such at the moment, that we almost spend more time performing administrative tasks than thinking about strategy. We are constantly responding to some sort of questions and sometimes there is no time for planning." ULFD10*
	Cultural	▪ **Organisational culture**	**The lack of entrepreneurial culture within the university and its basic units reduces the involvement of members of the academy in income diversification activities. Negative attitude towards relations with business and industry, for example, may slow down this type of cooperation. It was only mentioned by UL interviewees.**	
				"The Technology Transfer Office has to be active. For example in Aveiro they are active, they try to talk, do workshops – everything to stimulate scientists. At UL things are not easy in this respect, especially in terms of scientific culture." ULHD04

Table 32 shows that, according to interviewees' perceptions, there are more external than internal constraints for development of income diversification activities. These findings are arguably important for policy-makers who can target the areas identified by the interviewees as constraints to income diversification. While cultural aspects are difficult to change, further legal and funding changes may be advisable to facilitate income generation by universities. As to internal constraints, after being identified and acknowledged, they can be significantly improved by universities themselves, especially in what concerns organisational culture, exchange of information, and necessary skills.

Having looked at the interviewees' perceptions about success factors and constraints, we will now discuss organisational characteristics that allow universities to adapt to the changing funding environment.

8.3. Universities' Adaptations to Revenue Diversification

In Chapter 3, Section 3.2 we hypothesised that the need to pursue revenue generation activities will eventually elicit a change in structure and behaviour of universities. Our research showed that both universities demonstrated changes in their structural organisation and behaviour. It appears that many organisational attributes change gradually (*e.g.* attitudes, roles) or in stages (*e.g.* resource allocation mechanisms) (Eastman, 2006), while others (*e.g.* governance structures) can be rapidly changed by government legislation.

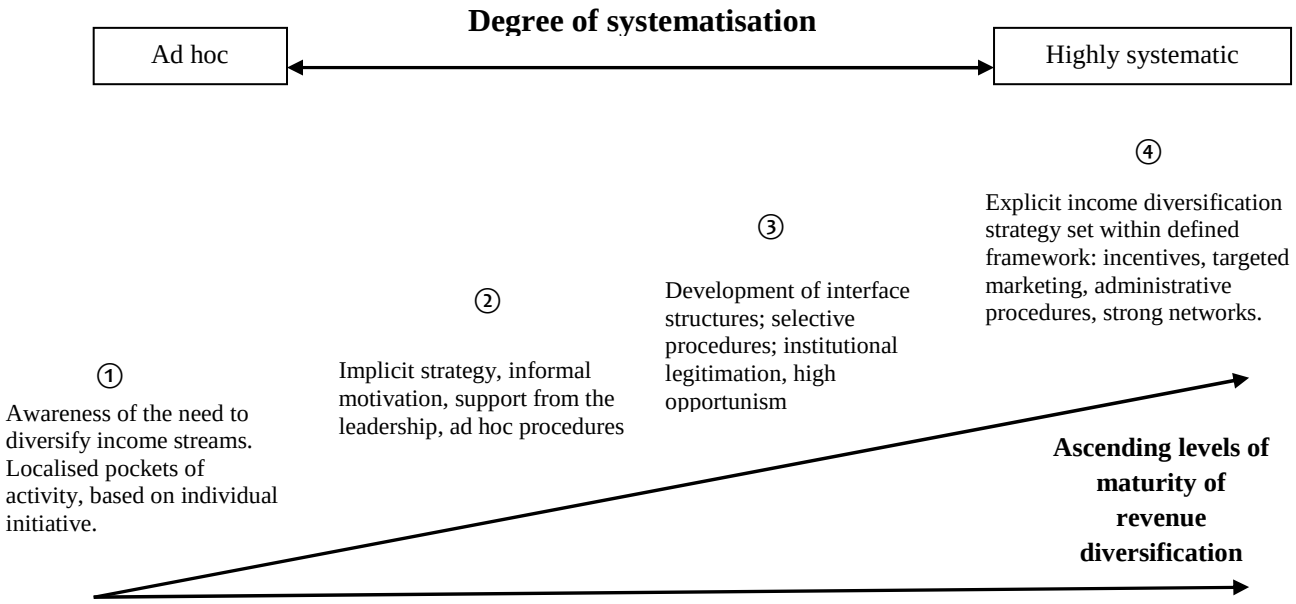
At our case-study universities changes in governance structures were dictated by the new legal regime. A change towards greater centralisation of decision-making power was noted at both universities. At UA this change seemed to be more naturally accepted as it had already followed a centralised organisational design. At UL, where each faculty is highly autonomous, the move towards greater centralisation was reported to take more time and effort. UA's centralised structure also arguably facilitates branding and image creation, while at UL each faculty possesses a highly distinct identity and there is a historical problem with a unified image.

Although changes in organisational structure of universities were the most cited changes during the past 10 years, according to the interviewees' opinions, they are not the ones that drive revenue diversification activities. The respondents of the study gave more importance to such organisational characteristics as entrepreneurial culture, good communication within the university as well as communication of skills and competencies to the outside world, maturity of relationships with the external actors, facilitating infrastructure and supportive leadership.

The interviewees emphasised that income generation activities develop over time during which an institution builds its reputation, its research capacity and relations with external stakeholders. As access to research funding and partnerships with external actors is a highly individualised and lengthy process, it does not seem very effective to apply a top-down approach towards revenue diversification right from the beginning. However, when a general awareness of the need for revenue diversification has been achieved and localised initiatives take place within the university, revenue diversification can be taken to another level with a more pronounced role of the institutional leadership. A more consolidated approach with an explicit strategy has proven to be successful for universities around the world (Etzkowitz, 2003; Estermann & Pruvot, 2011; Hatakenaka, 2004). The major characteristic of a successful revenue diversification is its sustainability and replication of best practices.

Our research indicates that we might consider revenue diversification to be an evolutionary process that develops along a continuum between low sophistication and systematisation of activities on one side and high sophistication and systematisation on the other. Stages in evolution from one end of the spectrum to the other are shown in Figure 13.

Figure 13 - Stages in evolution of income diversification



Adapted from Davies (2001)

Some necessary points should be mentioned:

- Developing revenue diversification activities takes time and financial resources. Universities cannot start with point 4 of the spectrum and expect seeing immediate results;
- Many factors will influence the process along the spectrum (institutional profile, personal relations, maturity of relationships with external actors, communication between actors, commitment of the leadership, etc);
- The spectrum is not static, regressions can occur if commitment of the institution weakens, or during economic crisis, for example.

Our study shows that both universities' revenue diversification development is situated between points two and three. However, the University of Aveiro appears to be slightly more advanced into stage three due to its integrated entrepreneurial culture and a higher sense of opportunity.

Having said this, it does not mean that both universities have to move towards stage four of income diversification evolution. This development depends on each institution's culture, norms and interpretations of external pressures. However, given the fact that both top and middle managers admitted the importance and desirability of income diversification, it is expected that they should move towards greater systematisation and sophistication of these activities.

In the next sections organisational responses to revenue diversification will be interpreted with the help of resource dependence and new-institutional theories.

8.4. Organisational Responses to Revenue Diversification

In this section we will explore the organisational responses to the need to diversify income streams by the University of Aveiro and the University of Lisbon. We will analyse changes in organisational structure through resource dependence and neo-institutional theories that were presented in Chapter 3.

The resource dependence theory states that organisations exist interdependently with their external environment. Its main propositions are: changes in the external resource environment trigger internal organisational changes and organisations will attempt to manage and change their dependencies to maintain stability.

The state has been the major resource provider for higher education institutions and their greatest dependency. It exercises high levels of control on allocation of resources and specifies performance criteria for their use. As the resources provided by the state are key to organisational survival both in terms of their criticality and magnitude, higher education institutions would not try to change this dependence, they would rather comply with the rules and regulations imposed by the government. Interviewees from both universities confirmed that resources coming from the state budget are critical to institutional stability. However, there are two characteristics of government funding that make universities look for other revenue sources. First, there is a growing perception of uncertainty and historical mistrustful relationship with the state as a funder. Second, state funding, both for

teaching and research has too many “strings” attached to it and in the current context universities need additional funds to be able to use them at their own discretion.

To reduce their financial dependency on the state the universities are exploring other sources of funding. Understanding the importance of additional funding sources was unanimous among the interviewed. The tactic used by UA in order to manage its resource dependencies was to differentiate itself from the competitors, well-established universities with longer traditions and reputation. The strategy for differentiation was in the university’s marked regional character, attention to the market, cooperation with the surrounding environment, tailoring its study programmes to the job market. It found its niches in a set of disciplines in which it is considered to be a national leader.

In terms of the organisational change, UA has created a developmental periphery in order to explore commercial opportunities of research: a proactive technology transfer office, a business incubator and a science and innovation park. Non-degree teaching activities are administered by another extension unit – UNAVE. It can be said that the University of Aveiro has been blurring the boundaries between itself and the external environment in order to take better advantage of cooperation with the external environment and to let the external society know what competencies the university has to offer. For example, more recently, after the study has been finished, the university organised departmental open-door days for business and industry, in order to let them know about each department’s skills and potential areas of cooperation. Although it is not possible to assess the effectiveness of these initiatives yet, creation of opportunities and spaces for communication between different actors is a positive development in itself.

In response to budget constraints and uncertainties, the University of Lisbon had to adopt a more business-oriented approach and rethink its day-to-day operation. Business-like behaviour of the university has expanded in different directions. UL faced powerful incentives to cut its costs, especially costs with personnel which absorb more than 80% of the budget. Implementation of the full-cost methodology can also be considered as part of its cost-conscious strategy. The research

suggests that UL has been also attentive to changes in demand for study programmes among potential students and tried to anticipate their preferences for a particular study area. Although, according to the interviewees, the university had never experienced a lack of students' demand, it has been trying to improve services for students and to make student life on campus more exciting in order to keep up with the competition.

As we could observe, the organisational changes at UL were mainly targeted at dismantling internal boundaries between the centre and the basic units and between different disciplinary communities. The main focus was on consolidating the university around common goals, strengthening the leadership role of the Rector and the central administration, and promoting organisational, managerial and cultural change.

A significant increase in research funding in the past years, gave both universities opportunities for additional funding. However, the interviewees at both universities confirmed that public research grants almost did not bring net revenue because government grants do not use a full-cost approach to funding research. Contrary to what some literature on "academic capitalism" suggests, academics did not conduct research in order to obtain revenue, or at least it was not their primary goal. Research income was valued by the interviewees because it allows advancing of the universities' missions, it brings prestige, as international rankings are based on research performance, and it motivates academics. Therefore, according to resource dependence theory it is a critical resource which universities will try to control as much as they can. In this respect, at the University of Lisbon there are attempts to streamline management of the university's research, broaden and strengthen research activity by cooperating with other higher education institutions and by merging with another university and create favourable conditions to attract international scholars. The University of Lisbon goal is to become a research university and it intends to achieve it by investing in research capacity, infrastructure and support services. The University of Aveiro is taking similar steps in this respect: more control over research activity by central administration; cooperation with other higher education institutions in administering

Master's and PhD programmes, creation of a Doctoral school, and internationalisation.

Resource dependence theory also argues that organisational survival depends on successful management of both external and internal dependencies. Internal dependencies relate to competition for resources within the institution and the relative power of individuals and constituencies in that competition. At UA, our study revealed that the power some basic units can exercise over others in terms of financial resources is mitigated by charging overheads on research and contractual activities by the central administration. Cross-subsidy of units that have smaller capacity to generate funds contributes to institutional stability in a sense that academic norms and values are preserved and preference is not totally given to money-making units. However, departments that generate more income feel that overhead collection at the central level is quite unfair and drains them of resources. They are obliged to add 20% or 30% for the university overhead to each research project they do. The money that stays with the research unit just covers the costs most of the time and the department often does not receive any overhead. However, as interviews revealed, more successful and well-established units have greater power in terms of bargaining for more staff positions and more resources. At the University of Lisbon more affluent faculties were reported to lend money to faculties in more restricted financial circumstances.

From a neo-institutional perspective organisational change is contingent on rules, requirements, understandings and assumptions within the organisation. It holds that institutional behaviour is conditioned by historical norms and traditions, by ideas about the acceptable structures and processes and organisational purposes. The new resource environment suggests that it is necessary to change norms and rules within the academe. The interviews with university's top and middle managers at UA show that the university in general is receptive to a new funding environment culture. Historically, cooperation with society was highly valued within the institution and academic staff was encouraged to get involved in external work. It was pointed out on several occasions by the interviewees that due to its historical development, the university is able to adapt to new circumstances. The

university is perceived by its members to be an innovative and pro-active institution. It associates itself with other similar institutions in Europe, being part of a consortium of innovative universities, for example. As entrepreneurship and innovation is the new order of the day, this organisational image helps the university to manage its resource dependencies as well. For example, RJIES clearly gave preference to institutions that demonstrated their ability to generate additional revenue by providing them with additional funding on a contractual basis.

At UL cultural aspects were cited both as a success factor and as a constraint to revenue diversification. The top management demonstrated mixed responses regarding revenue diversification. While there is a strong awareness of the need to move in the direction of a more market-minded behaviour, this need did not appear to be fully assumed. On the contrary, the interviewees in the middle management positions have shown acceptance and conformity with the new imperative for revenue diversification and a more business-like behaviour. This can be explained by the nature of their posts and related financial responsibilities. They have to “make the ends meet” and assure financial sustainability and progress of their units. They were also the ones lamenting that not all academics understand the need to be more cost-conscious and market-minded.

In this respect, future research could address the attitudes and perceptions of individual academics regarding their institutional environment and revenue diversification pressures. The interviews at both universities demonstrated that the incentives for revenue generation remain at the personal motivation level. So far, there have not been any penalties or monetary rewards related to performance in revenue generation. The main tools available to top and middle managers are persuasion and social interaction. As one top-manager put it “we alerted people for more revenue diversification through talking to them, how else can it be done?”

Cultural beliefs regarding revenue generation also vary among different faculties. The extent to which faculties within the university generate revenue varies according to the field of study, leadership and prevailing norms. For example, the dean of the faculty of arts and humanities mentioned that tuition fees at his faculty

have been lower than at the rest of the institution for some years. Historically, the faculty showed its support to the students' movement against tuition fees. However, a "hard" political decision has been made recently to bring up the level of tuition fees to that of the rest of the institution.

We could observe a co-existence of two kinds of normative demands within the universities. One set of norms relates to complying with the imperative of the day, becoming more entrepreneurial, market-oriented and finding innovative solutions for revenue diversification in order to obtain legitimacy and to conform to the outside pressures. However, another set of norms relates to maintaining and supporting traditional academic roles and activities which hold a great value to the interviewees. The interviewees admitted that their primary interest in revenue generation activities is the contribution of these activities to the core mission of the university. Another reason why academic values have not been affected to a greater extent is that the amount of third stream funding is not significant yet and cannot compete with public funding. The state's role is in part to make sure that universities perform their task of educating students and conducting socially relevant research. On the other hand, there are no pressures for academics to be involved in commercial activities as opposed to pressures to perform well in research activities. Opportunities for commercial activities often emerge as a reaction to outside demand rather than a concentrated institutional effort and active search for these opportunities. This suggests that the co-existence of diverse internal normative fields interferes with the uniformity of expected results.

CONCLUSIONS

This study aimed at understanding the revenue diversification phenomenon at Portuguese universities and its influence on university governance and management. The topic of revenue diversification has gained great importance in recent years in connection with at least three issues. First, the governments around the world experience budgetary pressures to fund systems of mass higher education in a more challenging and competitive environment; financial austerity calls for searching for additional financial resources. Second, the economic importance of scientific knowledge has intensified and its application is considered to be a key to successful national and regional economic development. The entrepreneurial university that scrutinises research results regularly for possible commercial as well as scientific applications is becoming a pervasive model for academic institutions. Issues associated with the development of university-industry relations and the role of government in enhancing the linkages between the two sectors has been high on the political agenda. Third, in response to the innovation gap between the US and Europe, public-private cooperation in higher education is encouraged and organisational models of American research universities are being emulated.

Against this background a study about revenue diversification and complementary funding sources seemed to be very relevant. Related to the revenue diversification topic is the question of how universities adapt to this new necessity of looking for alternative funding streams. Thus, the study also explored how revenue diversification influences university's governance and management arrangements.

Two research questions guided the study:

- How do universities raise extra income (what is their strategy, incentives and constraints)?
- How are universities' processes and structures influenced by the need to generate additional income?

In this final part we present reflections of the study, namely what we learnt about revenue diversification at selected Portuguese universities and what changes, if

any, this phenomenon has provoked at the institutional level. We start with a brief summary of changes in funding and governance environment, together with changes that took place at each university. We will then present findings related to the revenue diversification phenomenon. Based on these reflections we propose several directions for further research.

9.1. Summarising Changes

In the past fifteen years there have been several developments that shaped universities' behaviour towards more revenue diversification. First is the increase in tuition fees and an introduction of their minimum and maximum amount in the law of 2003. Tuition fees have become one of the major alternative funding sources. Another notable change is the shrinking public budget calculated on the basis of a funding formula. Though in absolute terms universities' budgets did grow over the years, there have been more claims on the same money than before (Section 4.3.). Finally, changes in university research funding presented universities with opportunities to capitalise on their scientific knowledge. Research funding is distributed on a competitive basis, which places great importance on the strength of universities' research groups. The priority that the last government has given to research and innovation has also played its role. Although the results may be mixed and criticised for the lack of continuity of some programmes, the attention to the subject has invigorated university-society cooperation. Thus, funding constraints and opportunities created a favourable context for revenue diversification.

Funding changes have been accompanied by changes in system-level governance (Section 4.4.). Reforms of 2007 (Law 62/2007) had a marked New Public Management influence, an approach adopted by other European countries during the period of 1980s-1990s and characterised by the drive towards more efficiency, effectiveness and competition (Chapter 2). In our study we observed changes in government regulations towards stronger university management with more centralised management structures. Further developments included the strengthening of managerial responsibilities at the middle level (faculty deans and

heads of departments) and the 'verticalisation' of authority lines (e.g., top-down appointments instead of elected posts). As a result of recent governance reforms academics have lost their monopoly of influence over organisational goals, strategies, and structures. While traditional structures and processes of collegial decision-making have been losing their importance, forms of informal influence still provide means to exercise academic powers within universities. Besides, peer review evaluation of research activity is one of the examples of professional self-control.

Despite some devolution of managerial authority, the state remains the major actor in higher education governance. Civil servants' status of academics, *numerus clausus*, universities' legal status, funding allocation policies - are some examples of continuous state control[27]. Our study also demonstrates that reliance on the state is still quite strong. Universities' managers expect the state to provide more guidance in terms of third-mission activities, for example. They would also like to see more pro-activity from the state in relation to system coordination and its reorganisation. As Neave (2012) points out, in Portugal, "the notion, fundamental to Neo Liberalism, namely, that private initiative had the capacity legitimately to substitute for the State, commanded very little credence" (Neave & Amaral, 2012).

Our study's focus was particularly on the phenomenon of revenue diversification at the institutional level. From the literature review we concluded that changes in funding and in particular, a push towards revenue diversification, would influence the organisational structures of universities. Below we analyse the changes at institutional level for each of the case studies.

In general, revenue diversification has gained an increased importance. Our analysis shows that respondents in both case studies perceive revenue diversification as a necessary activity for institutional and academic units' survival.

[27] Although there have been changes regarding almost each of these points (not all academics are civil servants, some are hired on fixed term contracts; two universities and one university institute changed their legal status to a public foundation one, there were changes in funding allocation, namely, multi-annual contracts were signed with public foundations' universities), they are not universal and even with public foundations the government did not fully meet its commitments.

However, each university has interpreted environmental changes in its own way, according to its individual characteristics and historical background.

If we apply Clark's (1998) terminology, the University of Aveiro's strategy to respond to changes in the funding environment was to extend the developmental periphery in order to pursue its third (service) mission and to take advantage of new opportunities. The interface units, such as the Technology Transfer Office and business incubator network, act as links between academic units and the outside community. The university has further plans to extend its co-operation with society through a science and innovation park. Expanding the developmental periphery also helps to institutionalise new modes of thinking among academics and disseminate an entrepreneurial culture.

While the University of Aveiro has been taking steps to dismantle external boundaries between university and the outside community, the University of Lisbon has been focused on breaking down internal boundaries that stand on the way of a more efficient institutional communication and cohesion.

The main focus of organisational change lies on consolidating the university around common goals, strengthening the leadership role of the Rector and the central administration, and promoting organisational, managerial and cultural change. The questions of cooperation between the university and the larger society are tackled on a day-to-day basis but they do not dominate the institutional discourse yet. Nevertheless, the university is composed by very heterogeneous basic units with different history, norms and values and the process of change is not uniform across the institution.

Another priority for the University of Lisbon is to consolidate the research capacity and the teaching offer. New strategic areas serve the purpose of creating interdisciplinary clusters, better coherence between postgraduate studies and research and extending educational offer to areas previously unavailable at the university, such as management, engineering and economy.

It has to be mentioned however, that the major organisational changes have occurred very recently and their effects on revenue diversification could not be studied yet. We can only make assumptions, based on previous studies and international practice, that these organisational changes will facilitate revenue diversification activities. The case studies have also demonstrated that a particular organisational structure does not determine a successful revenue diversification, although it can facilitate or inhibit the effectiveness of revenue diversification activities. More value has been attributed to other factors such as entrepreneurial culture, communication within universities and maturity of relationships with external stakeholders.

9.2. The Nature of Revenue Diversification

The first research question of our study sought to discover the way universities raise extra income and the factors that facilitate or impede this process. The study revealed that revenue diversification is a necessity in two important ways: as a revenue supplement and as an engine for institutional dynamics. It is not a goal in itself, but allows universities to fulfil their missions of teaching, research and service to the community.

Despite this importance attributed to revenue diversification, there were no formal strategies at the institutional level. There were strategic lines that included revenue diversification as one of other priorities and there were talks at the management meetings about the need to supplement government block grant with additional income sources. At the same time we noticed that there was no tight control over the revenue diversification process at the central level. The top managers who we interviewed often referred to revenue diversification as a process that was developed locally, at the basic unit and individual levels. Each faculty, department and research unit seemed to work autonomously in this direction. However, the literature suggests that the success of revenue diversification activities and their sustainability is in the ability to replicate or institutionalise existing initiatives and turn them into institutional templates (Etzkowitz, 2003). To do so, an analysis of what is being done inside the institution is required, as well as priority setting and

communication among the actors. It is clear from the study that the initial period of experimentation with revenue diversification is over (see Figure 13). In the next stage, the universities should be expected to act increasingly strategically if revenue diversification is a path to follow. There have been noted several indicators of institutionalising income diversification at the studied universities. For example, a set of incentives for cooperation with society was being devised as part of a new internal academic evaluation process; evaluation criteria for third-stream activities were being developed; centralisation of technology transfer offices and more central monitoring of research activities.

The study revealed that cultural change is an important factor in revenue diversification. Clark (1983, 1998) emphasized the importance of the normative dimension and its influence on academic and organisational behaviour. In his words, as ideas and practices interact, the cultural or symbolic side of the university becomes particularly important in cultivating institutional identity and distinctive reputation. In the transformation of universities, values or beliefs may lead, or follow the development of the other elements (Clark, 1998). Our research shows that some cultural changes are taking place in universities, albeit at different speeds. First of all, it is the acceptance of revenue diversification activities and the awareness of their indispensable role. Then, there are efforts in building an institutional identity (UL) and an entrepreneurial narrative (UA).

The study indicates that successful revenue diversification requires a professional support network. The interviewees emphasised the need for professional services in the areas of project management, marketing, and knowledge transfer, for example. The increased importance of management and administrative staff has been noticed at both universities. It was reported that there is a lack of a new type of professionals who can “interpret” scientific knowledge for industrialists and other external audiences, so that it makes sense to them. These professionals are not simply administrators, academics or managers – they are all three at once. They understand the motives and interests of all three communities. At both universities, respondents mentioned the need of such professionals and an attempt to create such a new “breed” of administrative staff.

In general, the role of administration is becoming more prominent. Three challenges stand out particularly: staying attuned to changes in resource dependencies; meeting expectations for compliance with environmental demands; and cultivating alternative resources to reduce existing dependencies (Gumport & Sporn, 1999). As the need for reporting and data management increases, so does the authority of administrators. However, the control of administrators over academic activity has not been noticed at either of case studies. Academics are quite autonomous in what they are doing in both teaching and research. There is also no apparent pressure from the state or administration to generate revenue.

The study proved that revenue diversification has become a part of the current reality of universities. Each university makes an effort to take advantage of different funding sources, especially concerning research, as most of the funding is distributed on a competitive basis. However, as a supplement to government block grant revenue diversification may be different from revenue generation. In other words not all revenue diversification activities may bring a surplus that can be reinvested in research or other activities. For example, in the case of research funding, if a full costing methodology is not applied, the university may subsidise the research activity by not covering all operational expenses. The same can apply to contracts with industry. In order to take full advantage of research and industry contracts, the interviewees reported that at both institutions a full costing methodology is being tested for further implementation.

The study showed that while there is a potential to further increase complementary funding from private sources, sufficient public funding is the key to a university's financial sustainability because it supports two basic pillars of higher education: staff and infrastructure, even though a share of staff salaries is already being supported by earned income. A great part of complementary funding, especially for research, also comes from public sources, national or international.

The study also indicates that the development of revenue diversification creates important policy challenges. The success in attracting alternative funding is not equally accessible to all institutions or at least not all institutions will be equally

successful in this activity. As the national review demonstrated (Chapter 4) the current government policy is to privilege institutions that raise additional revenue. The revenue diversification process is a process that needs time and investment for its development. In order to establish a successful revenue generation it is necessary to have sustained government funding. For example, part of the success of the American universities now lies in generous military funding since after the Second World War.

The role of the government is also important in supporting income diversification by providing the right framework conditions, removing barriers and setting incentives (Estermann & Pruvot, 2011). Granting autonomy to universities is another essential step. In the case of Portugal, academic and staffing autonomy can be improved. Government funding arrangements are yet another factor that can positively influence revenue diversification. Multi-annual contracts have been mentioned by the interviewees as a means for increased strategic manoeuvring. Hatakenaka (2005) suggests that public funding should be provided to enable institutions to jump start third stream activities including some for which the user communities are unlikely to pay; in turn, this should also help to implement cultural change within institutions. Other facilitating funding arrangements are matched funding schemes and project-based funding.

Finally, in the face of the increasing international competition and the perceived supremacy of the U.S. market-oriented system there are calls for less government and more market regulation coming from different policy levels. In this context, it is important to review the criticism coming from American academic writers of the functioning of markets in higher education. Such authors as Dill (2003), Geiger (2004; 2009), Bok (2005), Newman et al. (2004) among others raise the issue of the effect of markets on the public interest in general and on the special role of higher education in particular. Overreliance on market forces has led in many cases towards a drive for prestige that overshadowed such crucial issues as bearing responsibility for student learning, providing social mobility, protecting the public investment by addressing efficiency and productivity, supporting elementary and secondary education, serving as society's critic and building civic engagement

to sustain democracy (Newman et al., 2004). These threats have to be assessed and taken into consideration by European policy-makers.

9.3. Contributions of the Study

The findings of the study can have several contributions for theory as well as for practical application. First of all, the study has contributed to the existing knowledge of revenue diversification in public universities and has opened a debate about revenue diversification in Portuguese higher education. As this is a relatively new phenomenon in European higher education, expanding our knowledge on this topic is important for its better understanding.

This research also provided insights on the influence of the funding environment on universities, their governance and management. It studied the changes in organisational behaviour related to changes in funding environment, thus contributing to organisational studies in higher education.

The study has identified success factors and constraints that either foster or inhibit revenue diversification. It also looked at strategic planning and different approaches universities apply in order to diversify their funding streams. Additionally it presented a model of stages in evolution of income diversification which can be tested at other universities. These findings could be considered as useful for researchers in the higher education management field.

In practical terms, the research can be used by university managers who seek to improve their institution's performance in income diversification or set on a path of exploring additional income streams. It can also inform them of potential constraints and let them concentrate on success factors.

The study can also inform policy makes about effective ways to stimulate and support revenue diversification activity. It shows, for instance, that funding arrangements are very important for the universities' ability to engage in revenue diversification activities. It also demonstrates that different institutions would have different abilities and different scope of involvement in revenue diversification

activities, as they serve diverse environments and exploit different strengths inside the institution.

9.4. Limitations of the Study

Revenue diversification has become a growing phenomenon all over the world. It is related to several changes in funding and governance regulations of higher education, both at national and supra-national levels. Revenue diversification activities contribute to higher educational funding as well as to boosting innovation potential of higher education institutions. The study of revenue diversification proved to be relevant and timely. It has also been the first study about revenue diversification in Portuguese universities that looked at this phenomenon at the institutional level. Therefore, the results of the study are informative per se. However, the researcher faced several limitations and challenges that could be overcome in the future.

Choosing this object of study presented some challenges. Revenue diversification is a complex and multifaceted phenomenon. Alternative funding sources comprise public and private sources, national and international funding; and involve different levels of the organisational structure. In this study we chose to look at this phenomenon comprehensively. However, revenue diversification is a sum of various activities and overall judgment may be imprecise. Ideally, all aspects of this phenomenon should be operationalised and reflected upon.

One of the main challenges of the study was the data collection process, both in terms of interviews and quantitative data. There were several setbacks due to scheduling problems during the study. Both universities were undergoing or had just finished the elections of governing bodies and it was not always easy to make an appointment with the interviewee. Obtaining quantitative data was also sometimes complicated, especially at the department and faculty level. The interviewees preferred not to disclose exact amounts of external projects, or donations.

Another challenge was to distinguish between interviewees' responses and actual practices. As we chose respondents in top management and middle management positions, we may assume that their answers were highly dependent on general institutional discourse and how it positions itself to the outside environment. Initially the idea was to also include individual academics but it was not pursued further. This choice has resulted from time and resource constraints, as an extensive study of individual academics' view on revenue diversification would mean conducting a survey. This would prolong and complicate the data treatment and analysis. Instead, the researcher preferred an in-depth analysis of interviews with top and middle management and a thorough analysis of documents related to the subject.

9.5. Topics for Future Research

The final section of this study is dedicated to the question of further possible research directions. First of all, the scope of the study can be extended to other higher education institutions in order to validate the conceptual framework used in this study and obtain further empirical insights. Another extension of the study can be a closer look at the individual academic staff members. In our study we interviewed academics in management positions and noticed that there are differences in perceptions between central and middle management. It can be expected that further differences could be found at individual level. Furthermore, in terms of success factors and constraints to revenue diversification activities, individual testimonies could shed more light on institutional organisation.

A further step can be to differentiate by disciplinary fields, as there are indications in previous studies and in our research that different disciplines benefit from different revenue generation strategies. Alternatively, one revenue generation activity can be taken, for example, contract research, technology and knowledge transfer, spin-offs, patenting and licensing, community service and regional development, policy advice, and business consultancy, and studied for its impact and repercussions for the academe.

There are also several opportunities for comparative studies: between higher education sectors (universities and polytechnics), between old and new universities, between high and low performers. A comparative study can be also taken in an international perspective. Portugal can be compared to similar European countries, to countries with recent governance and funding reforms or to countries with more experience in revenue diversification.

It would be useful to carry out a follow-up study of the same higher education institutions. In our study we mentioned that changes that have taken place at both universities are very recent and one can only guess their impact on institutional revenue diversification capacity. Such a longitudinal approach will allow capturing the effects of changes in higher education governance and organisational structures on the ability to generate revenue.

It would be also interesting to look at other non-profit organisations in Portugal and their revenue diversification strategies. Do they use the same revenue diversification strategies? Do they experience the same constraints? What are the success stories?

Our study was conducted from an institutional point of view. We tried to understand how a university perceives the need to diversify its funding streams and what is being done at the institutional level in order to succeed. Further studies can contribute to this topic by investigating the perceptions of other stakeholders with whom universities engage in their revenue diversification activities. It would be especially interesting to understand: What are the barriers for business investment in university research and development? How are universities perceived by business companies and local power? And what are other parties' expectations towards universities?

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ANNEXES

Annex 1 - List of Abbreviations

AdI	Agéncia de Inovação (Innovation Agency)
AEAHE	Agency for Evaluation and Accreditation of Higher Education
APESP	Associação Portuguesa do Ensino Superior Privado (Portuguese Association of Private Higher Education)
CCISP	Conselho Coordenador dos Institutos Superiores Politécnicos (Co-ordinating Council of Polytechnic Institutes)
CHINC	Changes in University Incomes: Their Impact on University-Based Research and Innovation
CNAVES	Conselho Nacional de Avaliação do Ensino Superior (National Council for Higher Education Evaluation)
CNE	Conselho Nacional de Educação (National Education Council)
CRUP	Conselho dos Reitores das Universidades Portuguesas (The Council of Rectors of Portuguese Universities)
DGES	Direcção Geral de Ensino Superior (Directorate General for Higher Education)
ECDU	Estatutos de Carreira Docente Universitario (Academic Employment Statutes)
ENQA	European Association for Quality Assurance in Higher Education
EUA	European University Association
EUEREK	European Universities for Entrepreneurship, their Role in the Europe of Knowledge
FACC	Fund for Supporting Academic Community

FCT	Fundação da Ciência e Tecnologia (Science and Technology Foundation)
FUP	Fundação das Universidades Portuguesas (Portuguese Universities' Foundation)
GAPI	Gabinetes de Apoio à Promoção da Propriedade Industrial (Support Offices for Promotion of Industrial Property)
GDP	Gross Domestic Product
GPEARI	Gabinete de Planeamento, Estratégia, Avaliação e Relações Internacionais (Planning, Strategy, Evaluation and International Relations Office)
INPI	Instituto Nacional de Propriedade Industrial (National Institute for Industrial Property)
JNICT	Junta Nacional de Investigação Científica e Tecnologica (National Foundation of Scientific and Technological Research)
NPM	New Public Management
SEM	Strategic Enrolment Management
OCES	Observatório da Ciência e do Ensino Superior (Science and Higher Education Observatory)
OECD	Organization for Economic Co-operation and Development
OTIC	Oficina de Transferência de Tecnologia e Conhecimento (Technology and Knowledge Transfer Office)
PhD	Doctor of Philosophy
PRODEP	Programa de Desenvolvimento Profissional (Programme of Educational Development)

QREN	Quadro de Referencia Estratégica Nacional (National Strategic Reference Framework)
R&D	Research and Development
RJAES	Regime Juridico de Avaliação das Instituições de Ensino Superior (Legal Regime for Evaluation of Higher Education Institutions)
RJIES	Regime Juridico das Instituições de Ensino Superior (Legal Regime for Higher Education Institutions)
S&T	Science and Technology
SIFIDE	Sistema de Incentivos Fiscais em Investigação e Desenvolvimento Empresarial (System of Tax Incentives for Research and Business Development)
SME	Small and Medium-size Enterprise
SNESup	Sindicato Nacional do Ensino Superior (National Higher Education Sindicate)
THE	Times Higher Education

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Annex 3 - Interview protocol

Introduction

During the past several decades a worldwide tendency towards rethinking of public support for higher education has been observed. This can be manifested through performance-based or contract-based allocation of public funds to HEI, introduction or increasing of cost-sharing (contributions from students and their families) and encouraging HEI to generate extra income.

Q: In light of the above mentioned tendencies, do you think the way higher education institutions are financed in Portugal has been changing?

Q: Do you think revenue diversification is an important aspect in university funding?

Q: How do you see the current funding situation regarding institution's financial stability?

Q: How do you see revenue diversification (i.e. competitive, third party, industry-based income) activity in light of the current funding situation?

Research Question 1: How do universities raise extra income?

Theme 1: Strategy

Q: How does your institution raise income (written strategy) beyond OE?

Q: Who develops this strategy (what body/bodies)?

Q: What are its goals and the means of achieving them?

Q: What are the success factors (external and internal) for effective revenue generation?

Theme 2: Sources of extra income

Q: What are the main sources of income beyond OE?

Q: How have they changed in the past 10 years?

Theme 3: Incentives and constraints

Q: How are the faculty members encouraged to engage in these activities?

Q: What is the degree of freedom in using resources from other than government sources?

Research Question 2: How are structures and processes influenced by revenue generation activities?

Theme 1: Structures

Q: Has the organizational structure changed in the past years?

Q: What key changes have been made to organizational structure with the view of income generation?

Q: How would you characterize the organizational structure of your institution in light of its ability to generate extra income?

Theme 2: Processes

Q: Where (at which level/inside or outside the institution) do income generation initiatives usually start?

Q: What is the decision-making process?

Q: Who and how develops the budget proposal for the following year?

Q: How is the budget allocated between faculties/departments/schools?

Q: In general, how do you view revenue generation activities in terms of risks and opportunities?

Final considerations:

Q: In future, how do you think the relationship regarding funding with government and market (students, industry, research projects, and services) will change?

Q: In light of recent changes in HE legislation, what are your expectations regarding funding and capacity to generate additional revenue?

Q: Would you like to add anything to the discussion? Is there anything that in your opinion has not been covered?

Annex 4 - Summary of relevant legislation

Law	Designation	Implications
Law 46/86 of 14 October	Basic Law on the Education System	Established general principles of the Portuguese education system.
Law 108/88 of 24 September	Law on University Autonomy	Gave a vast range of autonomy to HEIs: pedagogical, administrative and financial autonomy. Gave freedom to institutions to establish their own statutes.
Decree-Law 113/97	Financial Framework for Public Higher Education	Defined the basis for higher education funding.
Decree-Law 252/97 of 26 September	Adopts measures to develop and deepen the Law on University Autonomy	Increased institutional autonomy in matters of personnel management, budgeting and buildings' ownership. Enlarged the autonomy to obtain and manage earned income according to the criteria established by the university itself.
Law 37/2003 of 22 August	Law on Financing of Higher Education	Revoked the Decree-Law 113/97. Introduced quality criteria into formula funding. Introduced a minimum and a maximum amount for tuition fees.
Law 62/2007 of 10 September	Legal framework of Higher Education Institutions (RJIES)	Revoked previous laws 108/88 of 14 October, 252/97 of 26 September, 37/2003 of 10 September as well as various laws about private and polytechnic higher education and united everything in one legislative act. Brought about important changes in the governance of HEIs. Some governance bodies became extinct, for example the University Senate, and other were created, like General Council. The participation of lay

		members in university governance became obligatory.
Decree-Law 205/2009 of 31 August	Academic Employment Statutes	Revision of academic staff statutes